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LAXMI®

Exam Notes

Learning and Teaching

For :-
B.Ed. Ist Year

Paper-III

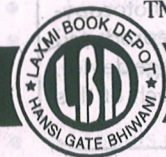
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SYLLABUS

LEARNING AND TEACHING

B.Ed.
Paper-III

Time : 3 Hours

Max. Marks : 100
[External : 80, Internal : 20]

Note For Paper Setter :

- Paper setter will set 9 questions in all, out of which students will be required to attempt 5 questions.
- Q. No. 1 will be compulsory and will carry 16 marks. There will be 4 short-answer type questions of 4 marks each to be selected from the entire syllabus.
- Two long answer type questions will be set from each of the four units, out of which the students will be required to attempt one question from each unit. Long-answer type questions will carry 16 marks each.
- All questions will carry equal marks.

OBJECTIVES

After completion of the course, student teachers will be able to :

- explain the concept and importance of teaching
- explain the concept of phases and levels of teaching
- describe different theories of teaching, models of teaching and strategies of teaching
- explain the concept, importance and types of learning
- describe Flander's Interaction Analysis along with concept and types of evaluation

COURSE CONTENT

UNIT-I

- Teaching: Concept, Nature, Importance of Teaching and Phases of Teaching: Pre-active, Inter-active and Post-active
- Teaching : Different from Instruction, Training and Indoctrination
- Levels of Teaching : Memory, Understanding and Reflective level
- Theories of Teaching: Formal Theories, Descriptive Theories, Normative Theories

UNIT-II

- Models of Teaching
 - Bruner's Concept Attainment Model
 - Mastery Learning Model
 - Inquiry Training Model
 - Glaser's Basic Teaching Model

- Strategies of Teaching
 - ◆ Simulation
 - ◆ Brain-storming
 - ◆ Lecture
 - ◆ Demonstration
 - ◆ Team-Teaching

UNIT-III

- Learning : Concept, Importance, Types and Factors Affecting Learning
 - ◆ Concept of e-learning (m-learning and online learning)
 - ◆ Constructivism
 - ◆ Learning styles
- Flander's Interaction Analysis: Concept, Procedure and Significance in Teaching-Learning
- Use of ICT in Teaching Learning Process

UNIT-IV

- Evaluation in Teaching – Learning Process: Concept, Need and Characteristics of Evaluation
- Evaluation Devices - Written, Oral and Observation
- Types of Evaluation : Formative, Summative and Diagnostic
- Grading and its Types
- Continuous and Comprehensive Evaluation

Task & assignment : any one of the following : (10 marks)

- Draft a report on Teachers' Teaching Style by one week Classroom observation of two teachers.
- A Survey based report on an effective Teacher behaviours or class room Instruction Strategies of effective Teacher.
- Study of a case and prepare a report on influential factors of learning.
- Any other task/assignment given by the institution.



COURSE CONTENT

UNIT-I

UNIT-II

CONTENTS

UNIT-I

- Describe in brief the nature and characteristics of teaching. 1
- or
- Describe concept, nature and importance of teaching. 1
- What do you mean by Phases of Teaching? Describe in detail the Phases of Teaching? 1
- or
- What are the different phases of teaching? Discuss the various activities involved in post active phase of teaching. 3
- What do you mean by Training? How is it different from Teaching? 8
- What do you mean by conditioning? How is it different from teaching? 9
- How can you differentiate between teaching and instruction? 9
- or
- What are the differences between teaching and instruction? 12
- Explain the concept of indoctrination. How education and indoctrination are different? 12
- or
- How can you differentiate between education and indoctrination? 13
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- Or
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- OR
- Give the classification of theories of teaching. Why are these theories needed? 15
- OR
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- OR
- What do you mean by theories of teaching? Explain formal and descriptive theories of teaching. 20

UNIT-II

- What do you mean by 'Model of Teaching'? Briefly discuss the various families of Models of Teaching. 20
- OR
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- OR
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OR

- ❑ What do you mean by Teaching Models? Describe the characteristics of Teaching Models..... 27
- ❑ What do you mean by a Concept? Describe in detail the concept-attainment model developed by Bruner.

OR

- ❑ What do you understand by the Concept Attainment Model? Describe the structure and characteristics of Bruner's Concept Attainment Model.
- ❑ Briefly describe various steps of using Concept Attainment Model of Teaching.

OR

- ❑ Describe in detail Bruner's Concept Attainment Model. Also illustrate different types of concepts as given by Bruner. 32
- ❑ What is Mastery Learning? Describe mastery learning model.

OR

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or

- ❑ Describe in brief the structure and characteristics of Inquiry Training Model.

or

- ❑ What do you understand by the term Inquiry Training? How can you use Inquiry Training Model to provide training in systematic inquiry to your students? Illustrate with examples. 40
- ❑ Describe Glaser's Basic Teaching Model. Also describe it in terms of fundamental elements.

OR

- ❑ Describe the Glaser's Basic Teaching Model.

OR

- ❑ Describe the fundamental elements, characteristics, merits and demerits of Glaser's Basic Teaching Model. 42

- ❑ What is Simulated Teaching? Describe its various steps. How is it useful as a Teaching Strategy? 46

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OR

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Or

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Or

- ❑ Describe main principles and advantages of Lecture Method of teaching. 52

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UNIT-III

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or

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or

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or

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or

- ❑ What do you mean by interaction and describe the procedure and significance of Flander's interaction style in teaching and learning.

or

- ❑ How would you modify the teaching behaviour of newly appointed teachers by applying Ned A. Flander's Interaction Analysis techniques.

or

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Unit-I

1.1 TEACHING : CONCEPT, NATURE, IMPORTANCE OF TEACHING AND PHASES OF TEACHING : PRE-ACTIVE, INTER-ACTIVE AND POST-ACTIVE

(A) TEACHING : CONCEPT AND NATURE

- Describe in brief the nature and characteristics of teaching.
- or
- Describe concept, nature and importance of teaching.

Ans.

Meaning & Definitions of Teaching

Different educationists have given their own definitions in order to understand the meaning of 'teaching'. Considering this objective, different models of education came into light. Consequently, the concept of teaching became more & more complex.

For clear understanding of the term 'teaching', it is essential to study all its aspects i.e. meaning, nature and its characteristics. In order to understand the meaning of 'teaching', it is necessary to understand its relation with learning.

The main function of teaching is to make learning effective. The learning process would get completed as a result of teaching activity. Hence, teaching and learning are very closely related.

- **John B. Hough and James K. Duncan** have defined teaching in this way— "Teaching is an activity with four phases : a curriculum planning phase, an instructing phase, a measuring phase, an evaluative phase." This definition presents organisational aspect by which we can describe and analyse the teaching process.
- According to **Jackson**, "Teaching is a face to face encounter between two or more persons, one of whom (The Teacher) intends to effect certain changes in the other participants (students)."
- According to **H.C. Morrison**, "Teaching is an intimate contact between more matured personality and a less matured one, which is designed to further the education of the later."
- According to democratic viewpoint of **N.L. Gage**, the definition of Teaching is like this Interpersonal influence aimed at changing the behaviour potential of another person.
- According to **Brubacher**, "Teaching is an arrangement and manipulation of a situation in which there are gaps and obstructions which an indi-

vidual will seek to overcome and from which he will learn in the course of doing so."

- According to **B.O. Smith**, "Teaching is a system of actions intended to produce learnings."
- **Clark** has defined Teaching in his own way. According to him, "Teaching refers to activities that are designed and performed to produce change in student's behaviour."

Teaching as a system of Actions

Teaching has its own types, its own elements and its own regularities. It is performed in special conditions, such as time-limits, individual abilities and structure of the institute. The teacher behaves in some particular way in which he makes the pupils to understand something expecting them to learn it by heart. He draws pictures on black-board and insists that all must understand that picture. In short, when a teacher performs all these activities, it means he is performing the task of teaching. These activities produce learning in the teacher and learner.

B.O. Smith defines teaching as a system of actions intended to induce learning. Teaching is not a single activity. It can be interpreted in its molecular form. It can be viewed as a family of activities where every activity becomes important turnwise.

Teaching may be defined as a system of actions directed to pupils. The teacher performs a teaching task. The teacher himself is a personality system which carries its own needs, past experiences and unique values. Whatever a teacher performs in his teaching activities are affected by the elements or factors constituting the personality system.

Each pupil is also a personality system separately which carries his needs, values, past experiences and knowledge etc. The teaching-learning system is also known as 'Instructional system'. Instructional system is a social system and not an individualized system. Instructional system is restricted, to one class room along with the teacher, to the group of pupils, material and social norms etc. Hence, teaching is the act of systematically presenting stimuli and/or cues.

Teaching as a Science

In the modern age, the teaching is recognized as the form of science. Teaching is also termed as an art. It is designated as science because all the activities can be supervised and analysed.

Also, these can be studied objectively. In nut-shell, we can say that the teachers can be prepared by imparting training to them. On the other hand, the persons designating teaching as an art believe that the teachers are inborn & they cannot be prepared with the help of any type of training.

Nature and Characteristics of Teaching

The nature of teaching can best be explained with the help of the following characteristics-

1. Teaching is a social activity.
2. Teaching is a process of development.
3. Teaching is a system of actions which produces learning.
4. Teaching is an art as well as science.
5. Teaching is a face to face encounter.
6. Teaching is observable, measurable and modifiable.

7. Teaching is continuum from Training, Conditioning, Instruction and Indoctrination.
8. Teaching is from memory level to reflective level.
9. Teaching shapes behaviours.
10. Teaching is a prescription.
11. Teaching is a tri-polar process.
12. Teaching is a linguistic process.
13. Teaching facilitates learning.
14. Teaching is guidance.
15. Teaching is an interactive process.
16. Teaching is a goal-oriented process.
17. Teaching is the development of learning situations.

(B) PHASES OF TEACHING : PRE-ACTIVE, INTERACTIVE AND POST-ACTIVE

- What do you mean by Phases of Teaching? Describe in detail the Phases of Teaching?
- or
- What are the different phases of teaching? Discuss the various activities involved in post active phase of teaching. [CDLU, 2018]

Ans.

Phases of Teaching

Teaching is a complex task. To perform this task, a systematic planning is required. In broader sense, teaching is an integral part of the process of education. It is a system of actions intended to induce Learning. Its special function is to impart knowledge, develop understanding & skill. An interaction takes place between the teacher and the students in this teaching process. This interaction directs the students towards the achievement of the goal. Hence, this interaction is the sole element of teaching process. This teaching process is considered in terms of various steps and the different steps constituting this process are called 'phases of teaching'.

The teaching can be divided into three phases :

1. Pre-active phase of teaching
2. Interactive phase of teaching
3. Post-active phase of teaching

1. Pre-active Phase of Teaching

This phase refers to the planning of a lesson. In this phase the planning of teaching is carried over. In other words, this phase includes all those activities which a teacher performs before class-room teaching or before entering the class-room.

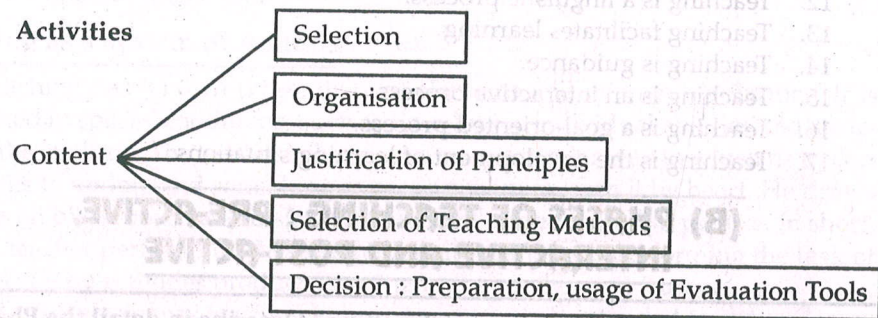
Planning of lesson is seen in broader terms. It is not just designing of a lesson plan. It includes :

- (i) Identifying the objectives to be achieved in terms of pupils learning.
- (ii) Strategies & methodologies to be adopted.
- (iii) Use of teaching aids.

It is purely a planning phase of instructional act. It starts with the establishment of some kind of goals or objectives and discovering ways and means to achieve these objectives. Hence, we can say that the planning is done in order to make

decisions with regard to the following aspects :

- Selection of the content to be taught
- Organization of the content.
- Justification of the principles and teaching maxims which are to be used.
- Selection of appropriate teaching methods.
- Decision regarding the preparation and usage of evaluation tools.



[Fig. : Planning of Instructional Act]

Suggested Activities in Pre-Active Phase

- Determining Goals/Objectives :** Determining goals/objectives refers to the following acts :
 - First of all, teacher determines the teaching activities.
 - These objectives are, then, defined in terms of expected behavioural changes.
 - Teacher ascertains the teaching objectives and he ascertains what changes the teacher expects in the students by achieving these objectives.
 - Objectives are determined according to the pupil's psychology and needs of the society and the school. These objectives are determined in terms of or in the form of entering behaviours of the pupils and in the form of terminal behaviours of the pupils.
- Selection of the Content to be Taught :** After the fixation of teaching objectives the teacher decides about the content which is to be presented before the learners and consequently the teacher wants to bring changes in the behaviours of the pupils. The teacher makes decisions keeping in the mind the following points :
 - Level, need & importance of the curriculum proposed by the teacher for the students.
 - Level & mode of motivation which is used for the pupils.
 - Expected terminal behaviours of pupil.
 - Selection of appropriate tools & methods to evaluate the knowledge related to the content.
- Sequencing the Elements of Content for Presentation :** After selecting the presentable content, the teacher arranges the elements of the content in a logical and psychological sequence or manner. This sequencing should be such that it may assist in transfer of learning.
- Selecting Instructional Methodology :** After the steps 1, 2 & 3 i.e. sequencing the contents, the teacher decides regarding the proper methods & strategies keeping in mind the contents, entering behaviour & the level of the students.

5. How & When the Teaching Strategies : Decisions regarding the methods and strategies for presenting the sequenced contents to the students is not enough. Teacher should also decide how and when he will make use of the previously selected method & strategy during the class-room teaching.

2. Interactive Phase

This is the second phase. It refers to the execution of the plan made during pre-active phase. In this execution phase, students are provided with learning experiences through some suitable modes.

Instructions are a complex process. Learners are provided with a designed environment in order to interact with so that the desirable changes are brought about.

Instructions may be given in any situation i.e. classroom, laboratory, library or outdoors. This environment is specifically designed by a teacher so that the pupils interact with certain specific environmental stimuli, e.g. information from books, certain laboratory equipment or natural components etc.

Consequently, learning is directed in pre-determined directions in order to achieve pre-determined goals. However, this does not mean that in the pre-determined environment, no learning other than what a teacher has decided upon in terms of instructional objectives does not take place. Students get learning opportunities when teacher provides a variety of experiences.

In inter-active phase of teaching, all the activities performed by a teacher when he enters the classroom are combined together. These activities are concerned with the presentation of the content in the class.

In this process, the teacher provides the learners verbal stimulation. This stimulation can be of various kinds such as asking questions, listening student's response & providing guidance, making explanations etc.

Activities Suggested in Inter-active phase :

1. Setting up of the Class : When a teacher enters the class-room, his first act is to perceive the size of the class room. He looks at all the students sitting in the class for a moment. He anticipates which students can assist him in the class-room teaching. Also he gets an idea regarding the trouble maker.

On the other side, students also start feeling the personality of the teacher as he enters the class-room. From this point of view, at this stage the teacher must look like a 'teacher'. He should display all his teacher-like characteristics which are supposed to have been a good teacher. Summarizing, the teacher should exhibit a very impressive personality and efficient look. Hence, in short, as a teacher enters. The class room, he should concentrate for a moment on : (i) Class of the size, (ii) Students helping mood, (iii) Students problem-creating tendency in the class during teaching, (iv) Display of impressive personality characteristics.

2. Knowing the Learners : Knowing the learners means to know about the previous knowledge the new learners have. It is done after perceiving the class-size. This he does by knowing the abilities, interests, attitudes and academic background of the new learners.

3. Starting Teaching : At this stage, the teacher starts teaching. This he does after diagnosing by questioning. Here, two types of activities are involved : (i) Initiation, (ii) Response. Initiation & response are known as 'verbal interaction'. The pattern of the verbal interaction is :

- Both these activities i.e. initiation and response take place between the teacher and the students.
- When a teacher performs some activity, the students react or when students perform some activities, then the teacher reacts. In other words, such 'inter-action' takes place in the teaching process.

Activities Performed by a Teacher

During this interaction, teachers perform the following activities in order to analyze the verbal and non-verbal interaction :

- Selection & presentation of stimuli
- Feedback and reinforcement
- Deployment of Strategies

1. Selection & Presentation of Stimuli : It refers to the selection and presentation of stimuli. The teacher should select the appropriate stimulus as soon as the situation arises. Efforts should be done to control the undesired activities and to create the situation for desired activities. The teacher should know the motive which would prove effective & which would not for a particular teaching situation.

After selecting the appropriate stimuli, the teacher should present them before the students. The teacher should present that form of the stimulus which can motivate the students for learning. During such presentation, the teacher must keep in mind the context and order of the stimuli.

2. Feedback & Reinforcement : It is that condition which increases the possibility for accepting a particular response in future. These conditions which increase the possibility of occurrence of a particular response are termed as feedback or reinforcement. These conditions may be of two types :

- Positive Reinforcement :** These are the conditions which increase the possibility of recurrence of desired behaviour or response.
- Negative Reinforcement :** These are the conditions in which the possibility of recurrence of undesired behaviour or response is decreased, e.g. punishment or reprimanding etc.

There are three-fold purpose for using reinforcement :

- to strengthen the response,
- to change the response,
- to modify or to correct the response.

3. Deployment of Strategies : As we know that the teaching activities are directly related to learning conditions, therefore, during interaction the teacher produces such activities and conditions by the reinforcement strategies which affect the activities of pupils.

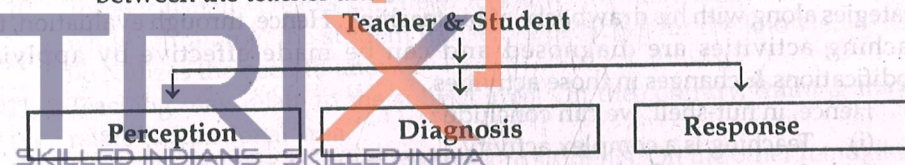
These teaching strategies make the pupil-teacher interaction impressive. The reinforcement strategies keep on controlling the pupils' verbal and non-verbal behaviours from the starting point of teaching upto the end of the teaching task.

At this stage of deployment of the teaching strategies, the following aspects are considered :

- Presentation of subject matter
- Level of Learning
- Level or context of learners, their back-ground, needs, motivation, attitudes, cooperation and apposition.

Operations at the Interactive Phase : At this level, teacher and students perform the following activities :

- On the part of the teacher, the activities are perceptual, diagnostic & achievement.
- On the part of the pupils, the activities to be performed are similar i.e. perceptual and diagnostic and achievement. Actually, this interactive phase is the implementation of first i.e. planning phase.
 - Perception :** Appropriate perception by teachers & students is very essential at this interactive stage. At the time of first entry into the classroom, class-climate is to be perceived by the teacher at first instance. He also tries to see into his own abilities for teaching the class. Similarly, students are also to perceive the abilities, behaviours and personality characteristics of the teacher.
 - Diagnosis :** In this process, the teacher tries to diagnose the students knowledge about the topic. This he does by asking the variety of questions & hence he tries to access the achievement level of the pupils.
 - Reaction Process :** At this segment of interactive phase, the teacher observes the pattern of responses and reaction made by the students against the questions asked by the teachers. Here, the students must learn the ways of reaction & responding to various stimuli & teaching techniques. It is that part of the interactive phase which is responsible for appropriate establishment of verbal and non-verbal class-room interaction between the teacher and the learners.



[Fig. : Major Operations in Interactive Phase]

3. Post-Active Phase : It is the third phase which involves teacher's activities, i.e. analyzing the evaluation results. It decides students' learning. It informs regarding their problems in understanding specific areas. It also suggests us the necessary changes which are to be brought in the system in the forthcoming instructional period. Hence, this post-active phase is concerned with the following activities :

- Evaluation Activities :** Post-active phase is concerned with evaluative activities. These activities are performed in a variety of ways, e.g. tests or quizzes or by observing students' reactions of questions, instructional situations and comments etc.
- Summing up Teaching Task :** During this post-active phase, the teacher sums up the teaching task. For this, he asks the questions from the learners, verbally or in written form. Also, the behaviours of the students are also measured in order to evaluate their achievements correctly.

In fact, these evaluation-activities evaluate all those achievements and attainment of objectives by the learners. In the absence of all these evaluative activities the entire teaching process would be an 'incomplete process.' In other words, this phase is related to both teaching and learning.

Suggested Activities

In post-active phase, the following activities are suggested in order to achieve the above mentioned targets :

- (i) Defining the exact dimensions of the changes resulted from teaching.
- (ii) Selection of testing devices & techniques.
- (iii) Changing the strategies in terms of collected evidences.

(i) **Defining Exact Dimensions** : The end of teaching should be followed by defining the exact dimensions of changes caused by teaching. It is termed as 'Criterion Behaviour'. For this, the teacher compares the actual behavioural changes in the students with their expected behavioural changes.

(Expected Behavioural Changes) – (Actual Behavioural Changes) = Exact Dimension of Changes

If the desired behavioural changes in maximum students are observed, it means the teaching strategies are very effective and in other words, the teacher objectives have been achieved to the maximum.

(ii) **Selection of Testing Devices & Techniques** : To achieve the objective of comparing desired and actual behavioural changes, the teacher has to select the appropriate testing devices and techniques which should be reliable and valid. For this, criterion tests are more preferred than the performance tests.

(iii) **Changing the Strategies in Terms of Collected Evidences** : By using the reliable and valid testing devices, the teacher acquires the knowledge regarding the performance of the learners and attainment of objectives on one hand, on the other side, the teacher also gets clarity regarding his instructions, teaching strategies & tactics. Here, he comes to know about the required modifications in his teaching strategies along with his drawbacks of his teaching. Hence, through evaluation, the teaching activities are diagnosed and can be made effective by applying modifications & changes in those activities.

Hence, in nut-shell, we can conclude :

- (i) Teaching is a complex activity.
- (ii) On this, controlled environment is required for interaction.
- (iii) This environment to be provided to the learners is constituted by the content, the teacher who organizes learning experiences, different ways & means of providing learning experience and the school setting. All these components are termed as 'instructional components'.
- (iv) Teaching is viewed as a comprehensive process.
- (v) Teaching is an active inter-active process which goes on consciously designed environment and the student with a definite purpose. It includes all the activities organized by a teacher in order to bring about learning. This may be in or outside classroom, with or without the presence of the teacher.

1.2 TEACHING : DIFFERENT FROM INSTRUCTION, TRAINING AND INDOCTRINATION

□ **What do you mean by Training? How is it different from Teaching?**

Ans.

Teaching and Training

People often get confused between teaching and training. Even when few people know that there is subtle difference between the both they will not be in a position to differentiate.

1. Teaching is mostly theoretically oriented whereas training is practical oriented.
2. Teaching provides new knowledge to the people while training helps the already knowledgeable people to learn the tools and techniques to apply the same.
3. Teaching is subset of training.
4. Teaching fills mind while training shapes habits.
5. Training lays stress on skills and abilities with a shorter time span whereas teaching lays stress on education knowledge and wisdom with a longer time span.
6. Training gives intensive information about a limited domain whereas teaching gives extensive domains with limited knowledge in general. In other words, training provides depth of knowledge in a specific sphere while teaching provides breadth of knowledge in all spheres. In a nutshell, training makes a master of trade while the teaching makes jack-of-all trades.
7. Training is for a specific area whereas teaching is, in general, a broader area.
8. Teacher commands lot of respect whereas the trainer is mostly treated from the commercial perspective.
9. Teacher provides information, knowledge experience whereas trainer facilitates learning.
10. Teacher usually creates the 'need to know' the knowledge for students while in training, the student himself approaches for the knowledge as he realizes the need to know.
11. Teaching may relate to the subject area. On the contrary, training may relate to functional area.
12. Generally teacher provides feedback to students. On the other hand, the trainer gets feedback from trainees.
13. Teaching usually refers to classroom learning. On the contrary, training refers to workshops, seminars involving various games, role-plays, simulation methods etc.

Indian education presently focuses on teaching not on training, focusing on training, as well, makes the students more confident & competent and helps them to get employment opportunities. A right blend of both teaching and training is the need of the hour. Hence, we see that training is different from teaching. Training equips mindset, tools set and skill set. Training is always an active area where there will be interaction, questioning learning by doing, role-plays, team-games and practical activities. Training helps in uncorking the hidden talents among the people.

Teaching is an activity aimed at bringing about meaningful learning through a method that is morally and pedagogically acceptable. It involves a teacher, a learner, a content in form of knowledge facts, information and a skill to be imparted, a deliberate intention on the part of the teacher to teach for learning and on the part of the learner to learn.

Hence, in educational context, teaching cannot be imagined without a teacher, a learner, a content and without learning actually taking place. Also, in teaching, the content must not be imposed. In teaching, the learner must be given freedom to ask questions and to classify ambiguous areas.

□ **What do you mean by conditioning? How is it different from teaching?**

Ans.

Teaching and Conditioning

Conditioning, in psychology, is behavioural process whereby a response becomes more frequent or more predictable in a given environment as a result of reinforcement. Early in 20th century, psychologists in Russia, England and USA developed the procedures, observations and definitions of conditioning. After the 1920s, psychologists turned their research to the nature and pre-requisites of conditioning. Conditioning is a form of learning in which either (i) a given stimulus (or signal) becomes increasingly effective in evoking response or (2) a response occurs with increasing regularity in a well specified and stable environment. The type of reinforcement will determine the outcome.

When two stimuli are presented in an appropriate time and intensity relationship, one of them will eventually induce a response resembling that of the other. This process is called classical (or respondent) conditioning.

According to James Drever (1968) conditioning is – 'a process by which a response comes to be elicited by a stimulus object or situation other than that to which it is the natural or normal response.'

According to Lefrancois (1983), conditioning is such a process by which an association between stimulus and response gets established.

Condition is the process of training to become physically fit by a regimen of exercise, diet and rest also the resulting state of physical fitness.

Conditioning is also, alternatively, a simple form of learning involving the formation, strengthening, or weakening of an association between a stimulus and a response. Conditioning has the following meanings or definitions also :

1. It is a learning process in which an organism's behaviour becomes dependent on the occurrence of a stimulus in its environment.
2. It is the cognitive process of acquiring skill or knowledge.
3. Conditioning is that process in which the reinforcer is removed and a conditioned response becomes independent of the conditioned stimulus.

Conditioning can be :

1. **Aversive Conditioning** : i.e. conditioning to avoid an aversive stimulus.
2. **Classical Conditioning** : It is the conditioning that pairs a neutral stimulus with a stimulus that evokes a reflex, the stimulus that evokes the reflex is given whether or not the conditioned response occurs until eventually the neutral stimulus comes to evoke the reflex.
3. **Operant Conditioning** : It is that conditioning in which an operant response is brought under stimulus control by virtue of presenting reinforcement contingent upon the occurrence of operant response.
4. **Counter Conditioning** : It is the conditioning in which a second incompatible response is conditioned to an already conditioned stimulus.

In short, Classical condition or Pavlovian Conditioning, or respondent conditioning is a process in which a stimulus that was previously neutral, by being repeatedly paired with another stimulus that normally evokes the response, as the taste of food. Similarly, operant conditioning or instrumental conditioning is a process of changing behaviour by rewarding or punishing a subject each time an action is performed until the subject associates the action with pleasure or distress.

Actually, classical learning is one form of learning in which an organism 'learns' through establishing association between different events and stimulus. For example, when a neutral stimulus (e.g. bell) is paired with an unconditioned stimulus (e.g. food), which produces some involuntary bodily response all on its own (such as

salivation), the neutral stimulus begins to trigger a response by the organism similar to that produced by the unconditioned stimulus. In this way, the organism has 'learned' that the neutral stimulus equals something good.

On the other hand, teaching is passing information from brain to brain. Teaching can be entirely cerebral. It can go wrong in a lot of ways.

Conditioning affects a deeper part of brain. It is how we truly learn. We are creatures of sense and motion, constantly watching the world, constantly affecting the world. A part of our brain, is always watching what we do and the effects it has.

Conditioning is natural and has an automatic correlation to reality. But the conditioning can get wrong even under good intentions.

Conditioning can be complicated as well. Even simple organisms will move towards pleasure and away from pain, but a child can be conditioned to some mighty strange definitions of pleasure and pain.

Characteristics of Conditioning

There are following characteristics of conditioning :

- (i) Conditioning is used in the learning of behaviours & habits.
- (ii) It puts emphasis on modification of behaviour.
- (iii) Conditioning is based on stimulus and response relationship.
- (iv) Conditioning is the process of training a person to do something.
- (v) Conditioning requires reinforcement for the conditioning of response.
- (vi) In conditioning, the learning of the behaviour depends on the strength of stimuli and response relationship.

Difference between Teaching & Conditioning

We can differentiate teaching and conditioning in the following ways—

Teaching	Conditioning
1. Teaching aims at the development of potential and intellectual development.	1. Conditioning aims at modification of behaviour & learning of habits.
2. The scope of teaching is much broader.	2. The scope of conditioning is relatively narrow.
3. Reinforcement in teaching is not necessary.	3. In conditioning, reinforcement plays a vital role.
4. In teaching, repetition of taught subject-matter is not necessary.	4. Conditioning is done by the repetition of behaviour to be acquired.
5. No stimulus-response relationship is established in teaching for learning.	5. In conditioning the stimulus-response relationship is very significant.
6. In teaching, there is curriculum which is very comprehensive.	6. In conditioning, the curriculum is fixed.
7. In teaching, qualitative and quantitative techniques are used for evaluation.	7. Evaluation in conditioning is done on the basis of acquisition of behaviour or habit.
8. Teaching is a broader process with various levels.	8. Conditioning is considered as the lowest levels of the entire process of teaching.

Normally it is operant conditioning which is compared with teacher because it simply seems to be a systematic form of training and hence teaching.

A child's behaviour can be altered through conditioning without the child's being consciously aware of the change or having any notion of why behaving in this way might be appropriate in the particular circumstances. Hence, the child acts simply because of his/her conditioning.

❑ How can you differentiate between teaching and instruction?

or

❑ What are the differences between teaching and instruction?

Ans.

Teaching and Instruction

Instruction is closely related to training in the literal sense. It is the act of telling the trainee or the learner what to do and what not.

Ducasse (1958) defines instruction as the act of 'building into the mind, knowledge of facts, relations or principles of one kind or another. In a class-room setting a teacher may instruct practicing teachers to prepare their lessons ahead of time, to relate evaluation questions to statement of objectives, and to always assign homework at the end of each lesson'.

Similarly, in a physical training context, trainees are instructed to 'quick march' and they instantly continue to march until a counter instruction is issued. Hence, the context of instruction makes the instructor a 'supreme commander' and the instructed 'an obedient servant', who has no say or who is actually not allowed to say anything even he wishes to.

The content of an instruction may be worthwhile, the intention may be noble but the method is undemocratic.

In a broader context, instruction is much more than teaching or training because it is systematic, specific & objective.

Instruction is the process of leading the learner through sequence of statements and restatements of the problem or body of knowledge that can increase the learner's ability to grasp, transform and transfer what he is learning. Thus, instruction is the process whereby the environment of the learner or an individual is deliberately managed to enable him to learn to exhibit certain behaviours under specified conditions or as a response to specified situation.

Instruction could therefore be a process of education or a sub-set of education but definitely not education itself.

In short, instruction has the following characteristics :

- (i) Instruction is closely related to teaching.
- (ii) It is the act of building into the mind, knowledge of facts, relations or principles.
- (iii) The method of instruction is undemocratic.
- (iv) Instruction is much more than teaching or training.
- (v) Instruction is systematic, specific & objective.
- (vi) It is the process of leading the learner through sequence of statements.
- (vii) Instruction may be the process of education but not education itself.
- (viii) Instruction is always formal while teaching and instruction are both formal & informal.
- (ix) Instruction is generally confined to the classroom while teaching is

imparted in the school, library, political groups and religious groups.

- (x) Instruction ends in a classroom while teaching never ends.
- (xi) There is a direct contact between teacher and student.
- (xii) Instruction aims at acquisition of factual knowledge.
- (xiii) The instructor must have proficiency in language.
- (xiv) Instruction is generally examination oriented.
- (xv) The process of instruction goes on in a specific context only.
- (xvi) Instruction has its limitation also. It does not develop or create interest in the learners.
- (xvii) Instruction involves pre-determined goals, methods of teaching & curricular.
- (xviii) Instruction is pre-planned & it is never spontaneous.
- (xix) Instructions are instructor oriented.

Instruction can be defined as 'the purposeful direction of the learning process'.

Instruction is complex and can take many forms. It is a vitally important classroom activity, but must be considered in the context of such factors as measures of desired student learning, controlling student behaviour, individual differences among students and school processes & characteristics.

Another definition of instruction is, 'the activities of educating or instructing; activities that impart knowledge or skill.'

Some more differences between Teaching and Instructions :

1. Teaching works for overall development while instruction works for skill development.
2. Teaching arouses critical thinking while instruction arouses only thinking.
3. Teaching produces new product while instruction aims for producing carbon copy or photocopy.
4. Teaching is explaining how something is done while instruction is telling how something is done. These two go hand in hand. Teaching is more complex in nature. When we talk about teaching, we are dealing with different techniques, strategies and approaches that will facilitate learning. Teachers have to come up with varied instructional material and must use the right strategies in teaching their lessons.
5. Teaching is also never ending process. Teaching can be formal & informal. But instruction is not as complex as teaching. Instruction is simply giving direction. Instructions make learners dependent on the teacher.

Teaching and instruction go together especially in education. Both are needed in helping people learn & develop as individuals.

❑ Explain the concept of indoctrination. How education and indoctrination are different?

or

❑ How can you differentiate between education and indoctrination?

Ans.

Meaning of Indoctrination

Indoctrination is the process of inculcating ideas, attitudes, cognitive strategies or a professional methodologies. Indoctrination is a critical component in the transfer of cultures, customs and traditions from one generation to the next.

Some distinguish indoctrination from education, claiming that the

indoctrinated person is expected not to question or critically examine the doctrine they have learned. Indoctrination is sometimes associated with negative connotations, while socialization refers to cultural or educational learning. Hence the term indoctrination is closely related to socialization.

Religious indoctrination, the original sense of indoctrination, refers to a process of imparting doctrine in an authoritative way. Most religious groups among the revealed religious instruct new members in the principles of religion, this is now not usually referred to as indoctrination by the religious themselves, in part because of the negative connotations the world has acquired.

Indoctrination implies forcibly or coercively causing people to act and think on the basis of a certain ideology. Some secular critics believe that all religions indoctrinate their adherents, as children and the accusation is made in the cases of religious extremism.

Richard Dawkins maintains that the children of the religious parents are often unfairly indoctrinated.

However, indoctrination can occur in non-religious context as well. The initial psychological preparation of soldiers during training is referred to as indoctrination.

In the field of information security indoctrination is the initial briefing and instructions given before a person is granted access to secret information.

Mind control (also known as brain-washing, re-education, coercive persuasion, thought control or thought reform) is the theoretical indoctrination process which results in "an impairment of autonomy, an inability to think independently, and a disruption of beliefs and affiliations". Hence, indoctrination means teaching someone to accept a set of beliefs without questioning them. Indoctrination often refers to religious ideas, when you are talking about a religious environment and does not let you question or criticize those beliefs. By the 1830's it came to mean the act of forcing ideas and opinions on someone who is not allowed to question them.

Indoctrination can be defined as teaching someone to accept doctrines uncritically, e.g. brainwashing i.e. forcible indoctrination into a new set of attitudes and beliefs, teaching or impressing upon the mind by frequent instruction or repetition, the profession of a teacher i.e. teaching or pedagogy or instruction.

Indoctrination can also be defined as, 'to teach (someone) to fully accept the ideas, opinions and beliefs of a particular group and to not consider other ideas, opinions, and beliefs'. The synonyms of indoctrinate are: brainwash, propagandize.

In simple words, it is to often repeat an idea or belief to someone in order to persuade them to accept it.

Difference between Education and Indoctrination

This difference between Education and Indoctrination is vast, but it is often subtle when the mind thinks of these two subjects.

Education involves the seeking of facts, and learning about what is the truth and what is not. Indoctrination is aimed at influencing people to believe in facts, without being able to backup these new found facts with anything but opinion.

You can be indoctrinated into a political party, a cult, or a belief system. In fact, all of us are indoctrinated into a belief system as we are growing up. Whether our parents or guardians are open and understanding people and want nothing to do with anyone outside of their own race and affiliations, we are subtly indoctrinated into their belief system. As we grow, many of us seek education in order to develop our own belief system.

Education can be directly supported by data that is derived from facts. Indoctrination tends to use language that encompasses everything referring to 'all' or 'every', as through the insights created are a statement of fact for each and every individual or a group. For example, all politicians spend too much money, all employees are religiously oriented and bring some holy book to work with them. You cannot support these statements of 'all' and 'every' without actual data. If you believe it, then it has grown from opinion to indoctrination.

Education points out that there are different solutions, often to the same problem. Indoctrination poses the belief that there is only one solution to a problem.

Education uses statistical analysis to encourage thought toward reasoning and proposed solution finding. Indoctrination often uses statistics, but has no analysis of size, duration, control subjects criteria or duration of the gathering of those statistics.

Thus, the statistics offered through indoctrination are simply misrepresented, and are used only to support the beliefs being posed. Any statistics that might dispute the beliefs are not brought to attention.

Education is unbiased. It is founded in fact and is not there to persuade anyone to come up with a certain belief. Education is development of one's own beliefs based on the facts that are discovered throughout the process. Indoctrination has no agenda. It is used to encourage the embracing of another's beliefs, and developing blinding and complete agreement with those beliefs.

We can summarize these differences as follows :

Education	Indoctrination
1. Education involves the seeking of facts and learning about what is the truth.	1. Indoctrination is aimed at influencing people to believe in facts.
2. Education can be directly supported by data that is derived from facts.	2. Indoctrination tends to use language that encompasses everything referring to 'all' & 'every'.
3. Education points out that there are different solutions, often to the same problem.	3. Indoctrination poses the belief that there is only one solution to a problem.
4. Education uses statistical analysis to encourage thought toward reasoning and proposed solution finding.	4. Indoctrination often uses statistics but has offered no analysis of size, duration, control, subjects, criteria or the duration of gathering of those statistics.
5. Education is unbiased. It is founded in fact, and is not there to persuade anyone to come up with a certain belief.	5. Indoctrination has an agenda to encourage another's beliefs.

1.3 LEVELS OF TEACHING : MEMORY, UNDERSTANDING AND REFLECTIVE LEVEL

- What is the concept of Teaching? Explain levels of teaching.

Or

- ❑ Describe the levels of teaching in detail.
Or
❑ Provide a comparative description of teaching organised at the memory, understanding and reflective level. [CRSU, 2018]

Ans. Teaching is a purposeful social activity. The teaching process is closely related to the learning. These days, teaching and learning are considered as a single concept.

In this activity an inter-action takes place between an experienced person (teacher) and an inexperienced person (student). It is an organised system of different kinds of activities. The aim of teaching is to bring about a change in the behaviour of the students. This behavioural modification depends on what kinds of abilities are used by the teacher & the students to achieve this end.

If we think deeply & logically, we will find that the teacher presents the subject matter after passing through various levels. These levels range from thoughtlessness to thoughtfulness. Actually teaching-learning process passes through the following three levels—

1. Memory Level
2. Understanding Level
3. Reflective Level

1. Memory Level

It is the first and thoughtless level of teaching. Memory is a mental ability which exists in all living beings. Through this ability, one gains knowledge and retains that acquired knowledge in memory. The teaching at the memory level is considered to be the lowest level or the least thoughtful level. At this level, the retention in the memory of the factual information learnt is of little consequence. At this level the thinking ability has hardly much role to play. The students only cram the facts, information, formulae and laws that are taught to them. According to Bigge, Morris L (1967), the teaching at the memory level is nothing but learning the subject matter by rote.

Its quantity varies from person to person. When we see an object, the experiences of that object start cumulating in our unconscious mind. When we recall & recognize these cumulated past experiences as & when needed, it is called memory.

In order to elaborate the meaning of memory we shall have to take the help of certain important definitions.

Mc Dougall says, "Memory implies imagining of events as experience in the past and recognizing them to one's past experiences."

As defined by **Ross**, "A memory is a new experience determined by the disposition laid down by a previous experience, the relation between the two being clearly apprehended."

According to **Stout**, "Memory is the ideal revival in which the objects of past experience reinstate as far as possible in the order and manner of the original occurrence."

At this level the function of teaching is to make the student learn by rote. At this level the role of teacher is prominent & that of student is 'inferior' (secondary). The student does the bidding of teaching. The study material is organised and pre-planned. The teacher presents the study material in a sequential order. The students memorize the facts by cramming. The student is externally motivated & not internally.

A good memory has the following characteristics—

- (i) Rapidity in learning,
- (ii) Stability of retention,
- (iii) Rapidity in recall,
- (iv) Serviceableness,
- (v) Forgetting irrelevant things.

After knowing about the meaning of 'memory', it is necessary to know about the 'memory level' of teaching. At this level, some facts & informations are presented & cramming is insisted. There is no relationship between the cramming & intelligence. The mentally retarded children can also cram. The purposeful subject matter can be very easily & quickly crammed. Memory level teaching lacks insight. Psychologically, it is cognitive level teaching. Knowledge is forced externally which is forcibly retained also. It is recalled and recognized as & when required. In memory level teaching, signal learning, chain learning & stimulus-response learning are insisted.

Merits of Memory Level Teaching

- (i) Teaching at this level is very useful for children at lower classes. Their intellect is under-developed and have a rote memory. This level of teaching is useful for small children.
- (ii) The subject matter of certain subjects is difficult to grasp. In these subjects, there is certain material that has to be learnt by cramming.
- (iii) The role of the teacher at memory level teaching is important. He is free to make the choice of the subject matter, plan it & present it at will.
- (iv) The knowledge acquired at the memory level teaching forms a basis for the future at the intelligence level and thinking level.
- (v) The memory level teaching acts as the first step for understanding and reflective levels of teaching i.e. pre-requisite for understanding level is memory level teaching and memory-level teaching and understanding level teaching are pre-requisite for reflective level teaching.

Demerits of Memory Level Teaching

- (i) The teaching at the memory level is of the lowest order. This does not contribute to the development of the student's capabilities.
- (ii) At the memory level the students learn by rote. The knowledge thus gained does not prove useful in the real situations of life because rote learning does not develop the student's talents.
- (iii) Teaching at the memory level is subject centred. In this scheme of teaching the teacher enjoys the primary position and the student is placed at the secondary (inferior) position. Therefore the interaction between the teacher & the student does not take place.
- (iv) The pupils are kept in strict discipline.
- (v) Cramming is over-insisted in this teaching.
- (vi) Intelligence does not carry any importance in this type of teaching.
- (vii) This level of teaching lacks motivation.
- (viii) At the memory level the teacher enjoys complete freedom. He is in-charge of all the activities related to teaching. Therefore his work-load gets heavier.
- (ix) In teaching at the memory level the students get motivated by extrinsic factors rather than by intrinsic factors. The knowledge acquired through extrinsic means is not lasting. It is only through intrinsic motivation that knowledge gained endures.
- (x) It is a thoughtless teaching level.

2. Understanding Level

Meaning of 'Understanding': 'Understanding' means perceiving relationship in the essential nature of things in a situation, comprehending thoughts or understanding the meaning of words used in a language.

The word 'understanding' has been used too vaguely. It is very difficult to define it clearly. It is to grasp clearly as a fact or realize. It is to perceive the meaning, grasp the idea, comprehend the meaning.

In the field of Education & Psychology, the above mentioned meanings are not enough. In these contexts, the meaning of 'understanding' can be classified as—

- (i) Seeing the total use of fact.
- (ii) As seeing relationship.
- (iii) As seeing both relationship & total use.
- (iv) A generalized insight.

Meaning of Understanding Level Teaching

The teaching at the understanding level is of a higher quality than the one at the primary level. It is more useful and thoughtful. From the point of view of mental capabilities the understanding level occupies a higher place in teaching than the memory level.

Understanding level of teaching means to explain the pupils about the relationship between principles and facts and to let them know where these principles can be applied. For understanding level of teaching, it is essential to get the memory level teaching barrier crossed.

The teaching at the understanding level lays emphasis on the students learning by understanding new facts, factual information, principles, theories, laws and formulae without resorting to cramming & enables them to use their knowledge in the real situations of life. If, for example, a student learns by understanding that $8 \times 5 = 40$, it implies that he has learnt the multiplication at the understanding level. Bigge, Morris L (1970) has said that understanding level teaching is that 'that seeks to acquaint students with the relationships between a generalisation and the particulars—between principles and solitary facts and which shows the use to which the principles may be applied'.

As compared to the memory level teaching, the understanding level teaching has greater merit. This enables the students to have a complete command over the subject matter. In this process of teaching, greater attention is paid to the subject taught. The students are acquainted with the subject matter more profoundly. In the learning process at this level the role of the teacher is more active. He has to work hard at this level. The students at this level are secondary. At this level, no cramming is encouraged. The new knowledge acquired at this level is related to the earlier knowledge gained, a generalisation is made on the basis of facts and the facts are used in the new situations. At this level, knowledge acquired is more enduring.

Merits of Understanding Level Teaching

The following are the merits of the understanding level teaching—

- (i) At this level of teaching the students make a greater use of intelligence and reasoning faculty.
- (ii) The knowledge acquired to the understanding level of teaching forms a basis for reflective level teaching.
- (iii) In this process of teaching the subject matter is presented before the stu-

dents in an organised and sequential form, and the new knowledge acquired is related to the earlier knowledge gained.

- (iv) The knowledge acquired at this level is more enduring than the knowledge acquired at the memory level of teaching. The students do not learn by cramming but learn by understanding the facts and factual information & their use & purpose.

Demerits of Understanding Level Teaching

- (i) At this level of teaching the source of aptitudes is the extrinsic means.
- (ii) The teaching at this level is subject-centred. There is no interaction between the teacher and the student at this level.
- (iii) In this teaching, only cognitive domain develops. No development of affective and psychomotor domains occur.
- (iv) In this level of teaching, only mastery is emphasized.
- (v) Human Behaviours are not attended.

3. Reflective Level of Teaching

Meaning : Reflective level of teaching is also known as a contemplative level or introspective level. Reflection means careful thought given to something sometimes over a long period of time. 'Reflective' is an adjective and reflective teaching means thinking deeply about something. So, reflective level is a level at which a deep and serious thought is given to something. In the process of teaching reflecting level is considered to be the highest level at which teaching is carried out.

Reflective level is highly thoughtful and useful. A student can attain to the reflective level only after having passed through the memory level and understanding level. The reflective level is a combination of the memory level and the understanding level and without successfully passing through these levels it is not possible to attain to the reflective level. Teaching at the reflective level enables the students to solve the real problems of life. At this level the student is made to face a real problematic situation. The student by understanding the situation and using his critical abilities succeeds in solving the problem.

At this level emphasis is laid on identifying the problem, defining it and finding a solution to it. The student's original thinking and creative abilities develop at this level. He begins to learn to reflect or things seriously. The reflective level teaching continues throughout life. The reflective level of teaching prepares the students to face the problematic situations. This level develops creative ability, critical analysis, new and original thinking. Bigge has defined the reflective level teaching as "Careful critical examination of an idea or supposed article of knowledge in the light of the testable evidence which supports it and the further conclusions towards which it points."

The role of teacher in this level of teaching is democratic. He does not force knowledge on the students but develops in them talents and capabilities. The role of the students is quite active. He lives upto his responsibility like a watchful guard. At this level the subject matter is not organized or pre-planned but is situation-centred.

In nut-shell, reflective level of teaching is that which is problem-centred and the pupil is busy in original imagination.

Merits of Reflective Level of Teaching

The following are the merits of reflective level of teaching—

- (i) The teaching at this level is not teacher-centred or subject-centred, it is learner-centred.
- (ii) There is an interaction between the teacher and the taught at the reflective level teaching.
- (iii) The reflective level teaching involves what has been acquired at the memory level teaching and at the understanding level teaching.
- (iv) At this level, teaching is highly thoughtful and useful than the teaching at the memory or understanding level.
- (v) At this level, teaching develops in the students the capability of solving their problems.
- (vi) The teaching at this level is problem centred also.
- (vii) The pupils can criticize their teachers openly.
- (viii) At this level, teaching cannot be restricted to curriculum, text books & the subject matter.
- (ix) At this level, teaching is appropriate for higher class.
- (x) Rigid or definite structure of the subject matter can be used.

Demerits of Reflective Level Teaching

- (i) This level of teaching is not suitable for small children at the lower level of teaching. It is suitable only for mentally matured children.
- (ii) At this level, the study material is neither organized nor pre-planned. Therefore students cannot acquire systematic and organized knowledge of their study courses.

1.4 THEORIES OF TEACHING : FORMAL THEORIES, DESCRIPTIVE THEORIES, NORMATIVE THEORIES

- ❑ What do you mean by a 'theory'? What are the theories of teaching? Describe them in detail.
- OR
- ❑ Give the classification of theories of teaching. Why are these theories needed?
- OR
- ❑ What do you mean by theories of teaching? Explain descriptive and normative theories of teaching. [CBLU, 2018]
- OR
- ❑ What do you mean by theories of teaching? Explain formal and descriptive theories of teaching. [MDU, 2018]

Ans.

Meaning of a Theory

There are many usages of the term 'theory' and they vary widely. (Hambers (1992) has identified its fifteen usages and he clustered them into the following nine clusters :

- (i) Theory as contrasted with fact.
- (ii) Theory as contrasted with practice.
- (iii) Theory as evolving explanation.
- (iv) Practical theory that guides a profession or art.
- (v) Theory as hypothesis.

- (vi) Theory as observational presupposition.
- (vii) Normative Theory.
- (viii) Empiricist Theory.
- (ix) Scientific Theory.

According to Chambers (1992), empiricist theory is one in which generalizations about observational variables are related to one another. A scientific theory is one that relates abstracts (e.g. mathematically or logically manipulable but not observable) concepts and their variables in logical or rational ways that accord with empirical observation.

Hence, there are two types of thoughts : theoretical and observational. The observational level deals with only empirical categories, and the theoretical level deals with abstract concepts.

Theory is an abstract or generalizing thinking, or the results of such thinking. The word has roots in ancient Greek, but in modern use it has taken on several different related meanings.

A theory is not the same as a hypothesis. A theory provides an explanatory framework for some observation, and from the assumptions of the explanation follows a number of possible hypothesis that can be tested in order to provide support for, or challenge the theory.

A theory can be a body of knowledge which may or may not be social with particular explanatory models.

According to Aristotle, a theory is very often contrasted to 'practice', which is opposed to theory because pure theory involves no doing apart from itself.

In modern science, the term 'theory' refers to 'scientific theories, a well-confirmed type of explanation of nature, consistent with scientific method and fulfilling the criteria by modern science.

Theories are analytical tools for understanding, explaining and making predictions about a given subject matter. Theory is constructed of a set of sentences which consists entirely of true statements about the subject matter under consideration. The truth of anyone of these statements is always relative to the whole theory. The same statement may be true with respect to one theory, and not true with respect to another. Sometimes two theories have the same explanatory power because they make the same predictions.

Theories of Teaching

There are various theories of teaching as well. A theory of teaching is a set of interrelated constructs, definitions, propositions which present a systematic view of teaching by specifying relation among variables with the purpose of explaining and predictions. (Kerlinger, 1965)

In this definition, Kerlinger has emphasized mainly on the relationship among teaching variables. The purpose of this relationship is to understand, predict and control teaching tasks. Hence teaching-tasks are the main targets.

There is another definition of Bruner (1964). According to him, theory of teaching is the explanation of general methodology of teaching.

B.O. Smith (1969) says, 'The theory of teaching is the teaching who is not theoretically trained will interpret events and objects in terms of communications concepts that have come from the experience of the race permeated without model ideas about human behaviours'.

This statement is the indicative of teaching theory's nature. In general, a

teaching theory answers three questions : how do teachers behave, why do they behave as they perform and with what effect. It is applicable for all teachers, for all students and for all situations in which teaching occurs.

Theories of teaching consider the teacher behaviours, the cause and student's learning effect.

The theories explain, predict and control the ways in which the teacher-behaviours affect the learning of students. A theory of teaching is expected to answer the questions of the teaching for efficient learning.

Need for a theory of teaching

A teaching theory is needed for the following reasons or it has the following advantages :

1. By using teaching theory, teaching objectives can be successfully achieved.
2. The teaching theories produce effective teachers.
3. Theory of teaching helps in developing the instructional designs.
4. Teaching theories are needed to explain the relationship between teaching & learning and to identify the common factors.
5. Teaching theories are required to provide the scientific basis for planning, organizing, leading and evaluating the teaching.
6. The knowledge of teaching theories help studying the class-room teaching problems scientifically.
7. The pupil-teachers help in developing the teaching skills & competency by employing the knowledge given by theory of teaching.
8. According to N.L. Gage, theories of teaching may be used to increase the understanding, prediction and control of teaching.
9. Teaching theory provides the knowledge about the presumptions of teaching activities which provide guidelines for organizing teaching.

Types of Theories of Teaching

We can classify the theories of teaching into the following categories :

1. Formal Theories of Teaching
2. Descriptive Theories of Teaching
3. Normative Theories of Teaching

1. Formal Theories of Teaching

The theories which are based on certain logic, certain metaphysical, epistemological assumptions and propositions are known as formal theories of teaching.

These are the philosophical theories which are of the following types :

- 1.1 Meutic Theory of Teaching
- 1.2 The Communication Theory of Teaching
- 1.3 The Moulding Theory of Teaching
- 1.4 The Mutual Inquiry Theory of Teaching

These theories are based on metaphysical and epistemological propositions. These are said to be earlier theories. These theories reflect upon the current social practices. Let us study briefly these formal theories of teaching.

1.1 Meutic Theories of Teaching : According to this theory, the teaching process helps to recollect or unfold the knowledge. This is done through questioning techniques. The teacher makes his efforts to bring his knowledge at conscious level of the child. In fact, the focus of this theory is on 'self-realization'. These theories

accept the importance of heredity's role in teaching process.

1.2 The Communication Theory of Teaching : This teaching theory is based on the following assumptions :

- (i) The teacher possesses all knowledge.
- (ii) The student does not possess that information or knowledge.
- (iii) The best way for the student to learn this knowledge is : the teacher's presentation, explanation, demonstration and performance in the class-room.
- (iv) This theory assumes that the child is like a 'clean slate'. The teacher can imprint upon it anything through his mode of communication.

1.3 The Moulding Theory of Teaching : The moulding theory of teaching was advocated by John Dewey. It is confined to impart the knowledge to the learners. This theory focuses on the shape, form and mould of the student's behaviour. The basic assumption of this theory regarding the human nature is that the human personality is formed, shaped and moulded by their environment.

1.4 The Mutual Inquiry Theory : This theory is based upon the main assumption about the nature of the knowledge is that the whole body or recorded facts as 'information' knowledge which in schools and outside the schools is generally substituted for inquiry. True knowledge is inquiry, used to apply efficient methods and relevant information for the solution problems.

Application of Formal Theory of Teaching

The formal theory of teaching has the following applications :

- (i) This theory of teaching is applicable to research & art.
- (ii) This theory assumes that each individual has the capacity to discover new knowledge with mutual inquiry.
- (iii) This theory implies that the teacher has a model in his mind to use in specific situation and the student himself selects the model for mutual inquiry.

2. Descriptive Theories of Teaching

Descriptive Theories of Teaching are based upon certain propositions and certain observations. Thus theories which are based on empirical evidences and observations are called 'Descriptive Theories of Teaching'. The purpose of these theories is to produce the relationship & effectiveness of variables of teaching. The theories formulated by Gardon and Bruner are :

- 2.1 Theory of Instruction
- 2.2 Prescriptive Theories

2.1 Theory of Instruction : A theory of instruction consists of a set of propositions stating the relationships between the measures of the outcomes of education and measures of both the conditions to which the learner is exposed and variables representing characteristics of the learner.

Models assigned to Theories of Instruction : There are three models assigned to the theories of instruction, such as -

- (a) Gagne's Hierarchical Theory of Instruction.
- (b) Atkinson's Decision Theoretic Analysis for Optimizing learning.
- (c) Bruner's Cognitive Development Theory of Instruction.

(a) Gagne's Hierarchical Theory of Instruction : Robert M. Gagne has proposed the following eight kinds of learning :

- (i) Signal learning
- (ii) Stimulus-response learning
- (iii) Chaining
- (iv) Verbal Association
- (v) Multiple Discrimination
- (vi) Concept Learning
- (vii) Rule Learning
- (viii) Problem Solving

Gagne has taken these above types of learning from theories of learning. He also identified learning outcomes associated with types of learning. These outcomes are :

- (i) Verbal information
- (ii) Intellectual Skills
- (iii) Cognitive Strategy
- (iv) Motor Skills
- (v) Attitude

Gagne emphasized that the theory of instruction must be based on the hierarchical structure of the events of learning. What goes on inside the learner's mind during the teaching-learning process may be termed as internal events. These events must be fully taken in consideration while planning the corresponding instructional procedures.

(b) Atkinson's Decision Theoretic Analysis for Optimizing Learning : Richard C. Atkinson came to instructional plan from the interest in Mathematical learning theory which he applied to Computer Assisted Instruction (CAI).

Atkinson proposed four characteristics which must be satisfied with a precise derivation of an 'Optimal Instructional Strategy'.

- (i) Model of the learning process should be involved.
- (ii) It should involve specified instructional actions.
- (iii) The instructional objectives should be specified in behavioural terms.
- (iv) Each instructional objective can be measured.

Burner advocates that a theory of instruction is designing measurement scale or questions.

This model has been developed in mathematical and engineering field.

(c) Bruner's Cognitive Development Theory of Instructions : Bruner advocates that a theory of instruction is prescriptive in that it proposes rules for achieving knowledge of skills and provides techniques evaluating learning outcomes. It is also normative in that it sets goals to be achieved & deal with conditions for meeting them.

A theory of instruction in short is concerned with how what one wished to teach can best be learned, with improving rather than describing learning.

In fact a theory of instruction must be concerned with both learning and development & must be congruent with those theories of learning and development to which it subscribes.

Bruner is insistent on the empirical steps necessary before the theory can prescribe the practice.

Bruner has specified four features that a theory of instruction must involve : Predisposition to learn, structure of knowledge, sequence of instruction and reinforcement.

- (i) **Predisposition to learn :** A theory of predisposition must be concerned

with the experiences & context that will make the child willing and able to learn when he enters the school.

- (ii) **Structure of Knowledge :** A theory of instruction should specify the ways which body of knowledge should be structured so that it can be readily grasped by the pupil.
- (iii) **Sequence Instruction :** A theory of instruction should specify the most effective sequence to present the material.
- (iv) **Reinforcement :** A theory of instruction should specify the nature and pacing of rewards, moving from extrinsic rewards of intrinsic one.

2.2 Prescriptive Theories of Teaching : An effort has been made by E.Stones and Morries to explain the nature of teaching with the help of three types of related variables :

1st Phase : It includes the teacher in the analysis of the teaching problems & teaching tests before the occurrence of teaching. It involves two types of analysis :
(i) Analysis of the nature of the student's learning.

2nd Phase : In this phase, decisions are made about the inter-relationship of the variables deemed appropriate to teaching objectives.

3rd Phase : It concerns with evaluating the effectiveness and workability of phase two. It consists of techniques of examination in which variables have been interrelated in second phase.

3. Normative Theory of Teaching

Looking at Learning Theories, these have been formulated by designing experiment in controlled situations & hence have less generalizability.

When we look at teaching theory, we see that it should have high generalizability because it is concerned with human behaviour.

It should be noted that more rigorous control cannot be imposed by designing experiments on human subjects. To do this, normative theory of teaching is required.

Normative theories of teaching are as under :

- (a) The Cognitive Theory of Teaching.
- (b) Theory of Teacher Behaviour.
- (c) The Psychological Theory of Teaching.
- (d) General Theory of Teaching.

(a) The Cognitive Theory of Teaching : According to N.L. Gage, there cannot be one theory of teaching. One theory of teaching cannot be one theory of teaching. One theory of teaching cannot satisfy the purpose of education, hence there can be more than one theory of teaching. The assumption behind this is that the teaching may be analyzed in the following four ways.

- (i) **Types of teacher activities :** Teacher is to play multiple roles in teaching. Teaching consists of many kinds of activities e.g. philosopher i.e. information given, advisor, counsellor, motivator, demonstrator, curriculum planner and evaluator.
- (ii) **Types of Education Objectives :** Bloom has given taxonomy of objectives i.e. three types of objectives : cognitive, affective & psychomotor. Tolman has also suggested things to be learned : field cognition mode, drive discrimination, field expectation and motor patterns.
- (iii) **Types of Learning theories :** Teaching takes place on the basis of different families of learning theory, philosophical theories of learning, psychological theories of learning i.e. S.R. Family, Reinforcement Theory

and Insight learning theory. Each family explains the different views of teaching process.

(iv) **Types of Components of Teaching** : Four components of teaching have been suggested by N. Miller : drive, cue, response & reward. Each component is in need of different teaching activities.

(b) **Theory of Teacher Behaviour** : Teacher behaviour consists of those acts that the teacher performs typically in the class room in order to induce learning as told by M.Meux & B.O. Smith.

Theory of teacher behaviour explains the relationship of variables. Theory of teacher behaviour is based on the following two postulates :

(i) **Teacher behaviour is social in nature** : Teacher's performance occurs in the group. It is concerned with the class-room verbal & non-verbal interaction. This interaction involves both teacher & students. The teacher or student performs the initiation & response. Both can influence each other. Hence, it is said to be social behaviour.

(ii) **Teacher Behaviour is relative** : Teacher's classroom activities are based on social situations. It is said that teacher's activities are the product of social conditions and are related to the cultural settings in which teacher performs the teaching task with reference to a particular cultural value system & set of objectives. It can be judged whether the teaching is good or bad, effective or ineffective. In this sense, teacher-behaviour is a relative concept.

(c) **The Psychological Theory of Teaching** : According to this theory, the teaching is a short contractual relationship between the teacher & the student. This relationship accommodates some activities which a teacher has to perform, e.g. : determining learning goals, identification of entry behaviours & selecting the strategies of teaching. The teacher utilizes his own experiences & insight while formulating teaching task.

(d) **General Theory of Teaching** : General theory of teaching has been formulated by S.C.T. Clarke. This theory assumed that the teaching process which is designed & performed to produce change in behaviour of students. The teaching activities are diverse and may vary at different levels of teaching and objectives. All these combinations are possible in teaching process. This theory limits the teaching activities to those which are acceptable by a democratic society.

In short, we can say that in the theory of teaching, teachers & pupils are the major variables of teaching theory. Actually it is narrow & specific. It is based upon learning theory, learning conditions and learning components. Learning theories are formulated by conducting experiments on animals, while teaching theories developed by dealing with human subjects in normal situations.



Unit-II

2.1 MODELS OF TEACHING

□ What do you mean by 'Model of Teaching'? Briefly discuss the various families of Models of Teaching.

OR

□ What do you mean by the term 'Teaching Models'? Describe its fundamental elements in brief.

OR

□ What is a Teaching Model? Discuss its need.

OR

□ What do you mean by Teaching Models? Describe the characteristics of Teaching Models.

Ans. Meaning of Teaching Model : The word 'Model' can be used in two ways : (a) In the form of some 'ideal', (b) In the short form of an object. To bring any ideal in the forefront a model is used. A person or a student tries to follow these ideals in his life. For example, the teacher presents himself as a 'role model' in front of the students. The students learn good things or good qualities from him.

Similarly, short form of any object is also used as a model. For example, if the engineers want to prepare the outline of any Dam, then they make a small model of the Dam, see its working and then make the actual Dam in a bigger form. Many times such small models are also kept as decoration pieces, i.e. a model of the Taj Mahal, a model of the Bhakhra Nangal Dam.

In the field of teaching also, 'teaching paradigms' are teaching models. Teaching models are developed on the principles of learning. In ordinary words, 'Teaching Model is a way of thinking about teaching.'

Models of teaching and learning are critical pieces to instructional planning and delivery because they help educators :

- (i) Allow them to reach larger number of students more effectively.
- (ii) Create either more uniform, or varied or effective instructional events, guided by targeted subjects, content or processes.
- (iii) Gain needed insights into why some methods work with some learners, while others do not.
- (iv) Radically modify or redesign existing methods of teaching and instructional delivery.

Different educationists have given different definitions of teaching models.

According to **Bruce R. Joyce**, "Teaching models are just instructional designs. They describe the process of specifying and producing particular environmental

situations which cause the student to interact in such a way that specific change occurs in his behaviour”.

Paul de Eggen says, ‘Models are perspective teaching strategies designed to accomplish particular instructional goals.’

According to N.K. Jangira and Ajit Singh, ‘A model of teaching is a set of inter-related components arranged in a sequence which provides guidance to realize specific goal.’

Joyce & Weil have given three meanings of teaching models :

- (i) Teaching models are just instructional designs. They describe the process of specifying and producing particular environmental situations which make the students to interact in such a way that specific change occurs in his behaviour.
- (ii) Teaching model is a “pattern or plan which can be used to shape a curriculum or course, to select instructional material and to guide a teacher’s actions.” Models are designed to attain specific goals. When a teacher identifies a goal, selects a particular strategy designed to attain that goal, we can say that he is using model approach.
- (iii) “A model of teaching consists of guidelines for designing educational activities and environments. It specifies ways of teaching and learning that are intended to attain certain kinds of goals.”

According to H.C. Wyld, teaching model is, ‘To conform in behaviour, action and to direct one’s action according to some particular design or ideal.’

According to Nelson L. Bossing (1970), “Teaching model is a pattern or plan, which can be used to shape a curriculum or course, to select instructional materials and to guide a teacher’s action”.

A general meaning of term ‘Model’ is a representation, generally in miniature, or to show the structure as a copy of something or typical form and style.

According to Morse, “Models are prescriptive teaching strategies designed to accomplish particular instructional goal.”

Models represent the broadest level of instructional practices and present a philosophical orientation to instruction. Models are used to select and structure teaching strategies, methods, skills and student activities for a particular instructional emphasis. Instructional models are related to theories about how we learn. Some examples include behaviourism, cognitivism, constructivism and connectivism. Various learning theories fit within these general categories, i.e. adult learning theory, social interaction, motivation theory, transformative theory etc.

Nature of Models of Teaching

1. Perspective strategies to guide planning and instruction.
2. Supported by research based evidences.
3. Detailed overview of how to teach.
4. Role of instructor.
5. Type of class-room structure.
6. Ways teacher supports student efforts.
7. Provide common language to discuss facets of instruction common across all classrooms among administrators & teachers.
8. Increase probability of learning certain skills/knowledge.
9. Promote awareness about how individuals and collective faculty teach.
10. Helps students learn how to learn.
11. Conceptual frame works grouped by purpose.

Assumptions of Teaching Models

Before going through the other aspects, it is important to know on what assumptions or conditions they are based? The assumptions of teaching models are as follows :

1. They act as the blue-prints for making the teaching atmosphere healthy.
2. In the teaching process the most important thing is the interaction between the teacher and the student.
3. Various methods should be used to make teaching simple or clear.
4. Teaching process is a medium for creating conducive atmosphere in the class. The teacher should always be making efforts for this.
5. Teaching is the creation of appropriate environment. There are various component parts of the teaching environment which are interdependent.
6. The content, skill, instructional roles, social relationship, types of activities, physical facilities & their use, all form an environmental system whose parts interact with each other to constitute the behaviour of all participants, teachers as well as students.
7. Different combinations of these elements create different types of environment & elicit different outcomes.
8. Models of Teaching create environment. They provide rough specification for environment in the class room teaching learning process.

Why We Should Develop Models of Teaching or Need of Models of Teaching or Functions of Models of Teaching

A basic question arises: Why we should develop models of teaching? What are its specific functions? How does a model help practicing teacher in class-room process?

These variety of questions can be answered in the following ways :

1. **Improvement in Teaching** : A teaching model helps improving the teaching-learning process in systematic and scientific manners and ultimately helps developing.
2. **Developing Curriculum** : A model of teaching helps in the developing of curriculum for different courses at different levels of education which is functionally transacted by the teacher.
3. **Guidance** : A model of teaching serves a useful purpose of providing in definite terms what the teacher has to do. He has a comprehensive design of instruction through which he/she can achieve the objectives of the course. Teaching is a scientific, controlled and goal-directed activity. Hence, a model of teaching provides guidance to the teacher and the students to achieve the goal of instruction.
4. **Specification of Instructional Material** : A teaching model specifies in detail the different types of instructional material which are to be used by the teacher to bring desirable changes in the learners’ personality.
5. **Other Functions** : Other functions are more specific in nature, i.e.
 - (i) Model of teaching gives practical shape to the systems of teaching acts.
 - (ii) Model of teaching determines criterion behaviour so that performance of the learners could be observed, assessed and evaluated for taking further decisions.

- (iii) Model of teaching helps modify teaching strategies for teachers more scientifically.
- (iv) Model of teaching helps modify teacher behaviours through teacher development programmes.

Characteristics of Good Models of Teaching

All good models of teaching have the following common characteristics :

1. **Scientific Procedure** : A good model of teaching is based on certain assumptions as well as grounded on specific theories of learning. It is not a haphazard combination of facts. It is a systematic procedure of modifying the learners' behaviours.
2. **Criterion of Performance** : A good model specifies the criteria of acceptable performance which is expected from the students.
3. **Specification of Operations** : All good models of teaching specify mechanism that provide for student reaction and interaction with the learning environment.
4. **Assumptions** : Each model of teaching has certain basic assumptions which are kept in mind while a model of teaching to be developed. The assumptions pertain to the elements or aspects :
 - (i) creation of appropriate learning environment,
 - (ii) occurrence of the nature & quality of interaction between the learners and teacher,
 - (iii) Using appropriate teaching strategies.
5. **Answer to some Fundamental Questions** : A teaching model answers some fundamental questions, such as : (i) How does a teacher behave? (ii) Why he/she does like this? (iii) What would be the effects of his/her such behaviour on the learners?
6. **Based on Individual Differences** : A model of teaching follows the age old maxims of teaching, which have been accumulated by our long experiences in teaching.
7. **Presenting Appropriate Experiences** : Teaching models provide appropriate experiences to the students and the teachers. These experiences are not based on rule of thumb, rather on the basis of some valuable data, theory or even philosophy.
8. **Influenced by Philosophy** : Good models of teaching are influenced by some kind of philosophy of real life. That is reflected in the edifice of curriculum.
9. **Development of Human Ability** : All good models are humanist in nature as well as in orientation. They are developed and used for the development of human ability and capability. Teaching is a system of human acts for the purpose of development of human capacity of others, called learners in the best economic and efficient manner.
10. **Specification of Learning Outcome** : All good models of teaching specify the learning outcomes in details in observable students performance. After completing an instructional sequence whatever the students perform is specified in detail.
11. **Specification of Environment** : Every good model specifies in definite terms the learning environment conditions under which a student will learn and modify their behaviours as focused in the model.

12. **Maxims of Teaching Driven** : All models of teaching follow our age old maxims of teaching which have been accumulated by our experience in teaching.

Elements of a Model

A teaching model has the following essential elements :

1. **Focus** : Focus is the central intent of the model. Focal components revolve around the main objective of the model. Models are usually developed with a focus, an end game or specific intention in mind. For example, Mastery Teaching Concept focuses on presenting materials in a tightly controlled, very repetitive way so that learners may have optimal opportunities to get content, concepts or processes right the first time. Another example, in cooperative learning models, the focus is on the importance of social interchange and peer support in learning new things. Therefore, models differ one from the other in terms of their primary objective or focal point of their intended outcomes.

Hence, there is a particular focus or objective of any particular teaching model. Keeping this focus in mind, the teaching model is developed. In other words, the objectives of teaching models are the objective of teaching itself. These objectives are related to the development of many kinds of skills.

2. **Syntax or Structure** : Syntax describes the model's structure and includes the sequence of steps involved in the organization of the model. It includes the major components and the phases of unfolding or the sequencing of steps and describes how the model progresses. Obviously, the syntax can be quite different for each model. Hence, in this step the series of teaching activities are decided. The teaching activities are so arranged that those situations occur which can contribute to achieving the required objectives. In this element, the interaction between the teacher and the student can be arranged in a systematic manner. So, in this way, the entire teaching process moves in a systematic manner. This kind of teaching process is related to objectives. There is one more purpose of this structure and that is to establish a relationship between the steps and phases of activities.

3. **Principles of Reaction** : Principles of reaction tell the teacher how to regard the learner and how to respond to what the learner does during the use of the model. Often responses in using designated model should be appropriate & selectively specific.

This element is concerned with the teacher's reactions to the student's responses. This portion of the model alerts the teacher on how to react to the responses of the students. It is here that the teacher learns whether the learners have been actively involved in the model's processes and steps.

4. **The Social System** : The social system describes the interaction between students & teacher as each model is viewed as if it were a mini society. Since, every teaching model is different, each model will have its own social system and rules of engagement. This portion concerns the interactive roles and relationships between the teacher and the student expected norms and which student behaviour should be rewarded. These may be overtly described or simply inferred. Depending on the philosophical orientation of the model, in some models the role of the teachers is dominant, while in others his or her role is passive. In some models the roles centre on the teacher and in others the concentration is on the students. There are still other models that require shared roles whereby teachers & students share roles equally.

In short, the basis of this element is that the teaching process is a social process, so the arrangement of the interaction of student and teacher is done in this step. The most significant purpose of this element is to control and bring about a change in the behaviour of the students.

Its form depends upon the focus and objectives of teaching. As every teaching model has its own social system, students are encouraged through this system. So, it is directly related to the prior activities performed by the students.

5. Support System : Support system defines the supporting conditions required to implement the model successfully. 'Support' refers to any additional requirement, beyond the usual general human skills and capabilities, that are needed to implement the model. This component relates to any additional requirements beyond those generally possessed by teachers or found in schools. What requirements are needed to make this model work? Are special skills or knowledge needed, or is there special equipment, media, or learning environment requirements that need to be accessed in using this model? This support would also include special books, films, laboratory kits, reference materials, permissions, facilities etc.

In short, in this step, all the teaching activities are analyzed. Based on the results of this analysis, the outline of the future activities is planned. The basis of this element is the achievements of education and its uses. The main purpose of this element is to bring about a change and improvement in teaching. This step is related to the success or failure of the teaching i.e. it is seen whether the proposed objectives are achieved or not or whether the strategy adopted for teaching process has been effective or ineffective.

The answer to this is available in step only. Though the purpose of each teaching model is different, the method of analyzing that Teaching Model will also be different.

6. Application and Effects : Application and effects are apparent – how can the students use what the model teaches? Application is the utility of the model as it can be transferred to other situations. Each model attempts to implement some change in learners and influence their thinking, feelings, social interactions, or physical movements in some way so that those changes can be transferred to other situations and experiences. Hence, application is considered as the Last and most important step. In this element, we are introduced to the use and application of the teaching model. Every teaching model is used in a specific condition and is useful in that condition.

(A) BRUNER'S CONCEPT ATTAINMENT MODEL

❑ What do you mean by a Concept? Describe in detail the concept-attainment model developed by Bruner.

OR

❑ What do you understand by the Concept Attainment Model? Describe the structure and characteristics of Bruner's Concept Attainment Model.

OR

❑ Briefly describe various steps of using Concept Attainment Model of Teaching.

OR

❑ Describe in detail Bruner's Concept Attainment Model. Also illustrate different types of concepts as given by Bruner.

Ans. Meaning of a 'Concept' : Concept attainment model of teaching belongs to Information Processing Family of teaching models. Before touching the concept-attainment model, let us understand the meaning of a 'concept'.

According to **Bruner**, formation of any group or category is known as 'Concept'.

According of **Mann**, 'Concept is the process which represents the commonness in different things or events.'

Dececco (1968) says, 'Concept is a class of stimuli which have common characteristics.'

Tennyson says, 'Concept is the group of specific things, symbols or events having similar characteristics and can be denoted by specific name or symbols'.

Concepts are the mental categories that help us classify objects, events, or ideas, building on the understanding that each object, event or idea has a set of common relevant features.

A concept is an abstraction or generalization from experience or the result of a transformation of existing ideas.

In contemporary philosophy, there are at least three prevailing ways to understand what a Concept is :

(i) Concepts as mental representations, where concepts are entities that exist in the brain.

(ii) Concepts as abilities, where concepts are abilities peculiar to cognitive agents.

(iii) Concepts as abstract objects, where objects are the constituents of propositions that mediate between thought, language and referents.

A concept is a common feature or characteristic. Concepts are mental representations that allow us to draw appropriate inferences about the type of entities we encounter in our everyday lives. The use of concepts is necessary to cognitive processes such as categorization, memory, decision making, learning and inference.

In dictionary, as a noun, it is a general notion or idea, an idea of something formed by mentally combining all its characteristics or particulars.

Concepts can be of the following kinds :

- 1. Abstract Concepts :** Intelligence, Love, Happiness, Sadness etc.
- 2. Concrete Concepts :** Book, Cell, Triangle.
- 3. Primary Concepts :** Not dependent on others, e.g. Tree, Noun.
- 4. Secondary Concepts :** Dependent on others, e.g. Adverb, Society, Mixed Economy.
- 5. Structured Concepts :** Meaning is same for all, science related concepts.
- 6. Unstructured Concepts :** Meaning is different for different people, Social Science related concepts.

A concept has the following elements :

- | | |
|-----------------|-----------------------|
| (i) Name, | (ii) Examples, |
| (iii) Attribute | (iv) Attribute values |
| (v) Rules. | |

According to **Bruner**, knowing these five elements is known as understanding of concepts.

The word 'name' is assigned to some category, e.g. a cat, a fruit etc. are the names given to the category of experiences, objects. Sometimes we learn the concepts with naming & on the basis of general characteristics.

The second element of a concept is an 'example' which may be positive or negative examples of the concept, i.e. examples of the concept are positive examples

While negative examples are those which are not the examples of that concept.

The third element is 'attribute' which means those common characteristics which force the placement of those example in one category only. But all the characteristics are not essential for a concept. There are some non-essential attributes also. Differentiation of essential and non-essential attributes is necessary.

The fourth element of a concept is 'Attribute Values'. Sometimes many variations in one attribute of an object are observed, e.g. many fluctuations in the colours of apples are seen, such as green, red and yellow colour. Hence, due to these variations in colours, green, red or yellow round objects cannot be termed as an 'apple'.

The fifth element of a concept is 'Rule'. A rule is a definition or statement specifying the essential attributes of a concept. Normally, a rule emerges out in the end of concept attainment process. The teacher uses a 'rule' just to explain his results in nutshell.

Concepts are taught in the class as a content. Content is the collective form of information which we collect from our surroundings through various processes. This information is found in three primitive forms :

- (i) Facts
- (ii) Concepts
- (iii) Generalizations.

There are different processes for acquiring the above mentioned various forms of contents. It is not possible to teach different concepts through the same teaching strategy. Different teaching strategies are required to teach various types of contents. Concepts are taught with the help of concept attainment model of teaching. Its description is given as under.

Meaning of Concept Attainment

'Concept Attainment' is an indirect instructional strategy that uses a structured inquiry process. It is based on the work of Jerome Bruner. In concept attainment, students figure out the attributes of a group or category that has already been formed by the teacher. For this, students compare and contrast examples that contain the attribute of the concept with examples that do not contain those attributes. They then separate them into two groups. Concept attainment, then, the search for and identification of attributes that can be used to distinguish examples of a given group or category from non-examples.

This strategy can be used in all curriculum areas. Students demonstrate that they have attained the concept by generating their own examples and non-examples.

Hence, concepts are the ideas of abstractions that are formed as a result of categorizing data from a number of observations. In this model, the emphasis is on the learner determining the attributes of a concept that has been pre-selected by a teacher. Hence, concept-attainment process involves the following activities :

- (i) Concept attainment is based on the powerful process of concept formation by asking students to analyze both examples, i.e. 'yes' and 'no' examples in a classroom lesson.
- (ii) These categories are tested against further examples and non-examples.
- (iii) Finally, a set of critical attributes is generated that define the concept they are learning.

This strategy engages students deeply in the skills of identifying similarities and differences and generating and testing hypothesis. The concept attainment lesson should follow the following principles :

- (a) **The Principle of Conceptual Clarity** : Learning a concept involves more than just learning a label; it involves learning the essential attributes of a concept. To learn essential attributes, one must learn to discriminate between examples and non-examples.
- (b) **The Principle of Multiple Examples** : When presented with two examples students can form initial hypothesis about a concept. However, when students see many and varied examples, they can define with increasing certainty the essential attributes of the concept.
- (c) **The Principle of Conceptual Competence** : A concept is learnt when students can list the essential attributes of the concept and when they can use those attributes to discriminate between examples and non-examples. Never be afraid to challenge students to apply their new understanding of the concept in a variety of ways.

How to Use the Strategy

1. Select a concept with clear critical attributes (e.g. alive mammals, civilization, tragic hero) that you want students to understand deeply.
2. Provide students with 'yes' examples which contain all the critical attributes of the concept and 'No' examples, which contain some but not all of the critical attributes.
3. Ask students to identify what all the 'yes' examples have in common and how the 'yes' examples differ from the 'no' examples. Students should generate an initial list of critical attributes of the concept.
4. Provide more 'No' & 'Yes' examples that students can use to test and refine their initial list of attributes.
5. As a whole class, review the 'Yes' and 'No' examples and generate a final set of critical attributes.
6. Ask students to apply their understanding of the concept by creating a product or completing a task.

Concept Attainment Model

Concept attainment model was developed by Jerome Bruner & associates. Bruner and associates devoted their major work to the description of a process by which we discriminate the attributes of things, people, events and place them into categories.

According to Bruner, categorizing activity has two components : the act of concept formation and the act of concept attainment. According to him, concept formation leads to concept attainment. In concept attainment there is only one concept. Using clues provided by the teacher, students try to determine the identity and definition of that concept. The description of Bruner's Concept Attainment Model is given below.

Assumptions of Concept Attainment Model

1. Our environment is very complicated and it has many types of objects with different areas. We remain involved in the process of categorizing these objects.
2. Categorization reduces the complexity of the environment.
3. Categorization reduces the need of new and continuous learning.
4. By knowing as concept, we can plan future activities.

5. Methods to attain all the concepts are similar.
6. Though the contents of categories is different in different cultures, all the concepts are the result of similar thinking processes.

Elements of Concept Attainment Model

1. **Focus :** The main focus of this model is to learn or to attain a concept. The main objective of this model is to develop inductive reasoning. Through this model the students learn to describe the process so that they develop the capability to classify various events, individual objects etc. This type of learning can take place by categorizing activity. This categorizing activity, includes the 'identification events' and placing into classes on the basis of certain criteria.

The categorizing activity has two aspects :

- (a) Act of Concept Formation
- (b) Act of Concept Attainment

The act of concept formation is the first stage of the concept attainment.

Both the activities i.e. concept formation and concept attainment have different objectives. The thinking processes of these two activities have different steps. Both these activities need different teaching processes.

In short, we can improve the instructions through concept learning.

2. **Syntax :** The concept attainment model has three variations. These can also be termed as 'model'. The activities of the syntax of these three models differ but these variations or models develop from the same conceptual base. These variations or models are as follows :

- 2.1 Reception – Oriented Model
- 2.2 Selection – Oriented Model
- 2.3 Un organized Materials Model

2.1 **Reception – Oriented Model :** In this model the concept is attained under reception conditions. It functions directly for the teaching of elements of a concept. The syntax of reception-oriented model has the following four phases :

1. **Phase I :** In this first phase the following activities are included :

- (i) The data are presented before the learner.
- (ii) Each unit of the data is a separate example of the concept.
- (iii) These data include events, people, objects, stories, pictures etc.
- (iv) The teacher explains to the pupils that all the positive examples have a common idea.

(v) These examples are presented before the pupils in a sequence.

(vi) Learners are asked to differentiate examples and to justify them.

(vii) The teacher & pupils may keep the record of attributes of these examples.

(viii) After this, the students are asked to give definitions of the concept on the basis of essential attributes and are asked to give some name to the concept.

2. **Phase II :** During this second phase, the pupil will test the attainment of the concept. He will do this by identifying un-marked examples related to the concept. He will also quote examples of his own.

3. **Phase III :** In this phase, pupils start analyzing those strategies through which they learn or attain the concept. Many pupils initiate their task with comprehensive constructs and move to the narrower areas and start their task with very discrete constructs. Hence, at this stage, the pupils analyze the pattern which they have used. This phase is not possible in the case of small children.

2.2 **Selection – Oriented Model :** The reception and selection oriented models

differ in labelling and sequencing of examples. In the selection-oriented model the examples are not labelled until the pupil says 'yes' or 'no'. In the selection oriented model, the pupil can work individually or in a group. Each person or pupil inquires about the examples. While in a group, the pupils can make decisions collectively about the examples, but initially the pupil should function individually.

The following are the phases of syntax in the case of selection-oriented model :

1. **Phase I :** In this first phase, the data are presented and attributes are identified. In this the teacher presents un-labelled examples. The pupil inquires which example is positive. The pupil formulates his own hypotheses and confirm them.

2. **Phase II :** In this second phase, the attainment of the concept is tested. The pupils identify additional unlabelled examples. They also construct examples of their own. The teacher confirms the hypothesis, names the concept & restates the definition of the concept according to the essential attributes.

3. **Phase III :** In this last phase, the pupil analyses the thinking strategy. He discusses the role of hypothesis & attributes. This phase is not possible in the case of small children.

2.3 **Unorganized Material Mode' :** This model is more useful when it is applied to ungrouped or unarranged material. The main phases of syntax of this model of ungrouped material are as follows :

1. **Phase I :** In this first phase, the description of a concept is given as it is used. In this phase the concept is searched out and it is labelled. Besides this, those attributes are identified which are to be used.

2. **Phase II :** In this phase, the concept is evaluated. In this process, the appropriateness and adequacy of the concept being used are discussed.

3. **Social System :** In this model, the teacher constructs examples and obtains ideas and materials from books and other sources before starting the teaching work. He prepares the designs in such a way that the concept has negative and positive examples along with distinct attributes. In the use of reception-oriented model, the teacher plays the role of a teacher. When required, the teacher may present additional examples of his own. The teacher tries to control the various class-room activities, but he also gives them the freedom for discussion in different teaching situations. The teacher can also encourage the students to participate in the discussion. Every activity of the students should be clear.

4. **Support System :** In the concept attainment model, such material is required in which the concepts can be incorporated in that material. In this material, those negative and positive examples can also be included about which the pupils may be prompted. The pupils should also be made clear that they are not to make new inventions, but they are to attain those concepts which are existing already and the teacher has selected them. Hence, the teacher should have the knowledge, in advance of various aspects of the process of concept attainment and about sources of information or data.

All the information given to the students should be of such nature that the students are able to understand the concept properly. So, the text-book should have such a serial order, that makes the concept clear. So, a strategy is adopted so that the students can be familiarized with the new concepts. In evaluation objective type or essay type tests are administered. It is always better to give a written test.

5. **Application or Utility of Concept Attainment Model :** The use or application of Concept Attainment Model is very wide. Its main use is for learning languages. Besides these, its uses or applications are as under :

- (i) Concept attainment is a good method for familiarizing unknown concepts.
- (ii) When there is no mention of concept teaching in some subject matter, then concept attainment model cannot be used. In case of generalizations, facts, giving reasons, this method cannot be used.
- (iii) This method is used where efforts are made to learn.
- (iv) The application of this model determines the specific learning activities, e.g. if the emphasis is on learning new concept, then the teacher will discuss the attributes of each example or he will follow questioning.
- (v) This model can be applied to all the age groups. For small children, the concepts and examples should be simple.
- (vi) The teacher has to make efforts to use the available material in the form of examples in early childhood.
- (vii) The selection strategy and unorganized strategy are more useful at the secondary stage.
- (viii) This model is an excellent test of evaluation.
- (ix) New areas of the concept can be touched through individual or group inquiry.
- (x) Any controversial concept can be interpreted differently by the teacher & hence, a discussion can be initiated.

(B) MASTERY LEARNING MODEL

- ❑ What is Mastery Learning? Describe mastery learning model.
- Or
- ❑ Describe the various elements of a teaching model. Explain them with reference to mastery learning.

Ans. Meaning of Mastery Learning—Mastery Learning is a way of organising instructions. This method was made famous by J. B. Carroll and B. S. Bloom. This method helps in obtaining satisfactory level of performance in the school-subjects. According to John Carroll, Mastery learning is dependent upon the aptitude of the person concerned. Whatever the aptitude, the learning will also be equal to that.

According to Bloom, Mastery Learning has the following characteristics :

1. Mastery learning of any subject can be defined as one which represents its course or its unit.
2. Matter is divided into small learning parts. Every unit has its own objectives. They are a part of small or major objectives. These objectives are essential for mastery.
3. The learning material is then identified. Afterwards instructional strategy is selected.
4. With every unit, there are diagnostic tests to evaluate the progress of the children. Whatever problems the student encounters, these tests familiarize him with those situations.
5. The use of the data that is procured after the diagnostic tests, is made to instruct the students so that whichever problems the students face, they can be removed.

The following are the details of Mastery Learning :

1. Focus—According to Bloom, Mastery Learning aims at controlling the pace of the student, his aptitude, his prior knowledge of the subject, without imposing any restriction of time on him. In other words, the main objective of this model

is to acquire a satisfactory level of performance in the school-subjects. But Bloom and other experts were not able to indicate whether this model could be used in the class, easily or not. They believe that this can only be used after making amendments, in the traditional group instructional methods. This model decides that some students who have more time can get extra instructions for Formative Evaluation of Results. Modern Instructional Techniques like programmed Learning Procedures have encouraged the curriculum developers to search for a wide curriculum system so that individual instructions can be given greater degree of proportion in comparison with the instructions given in traditional schools or organisations.

2. Syntax—In the Syntax of Mastery Learning Model, there is also the individualized type of instructional programme. Individualized Instructional Programme module explains the syllabus. This has been developed to develop the syllabus further by Systems Analysis Procedures. Such programmes follow the following steps :

- (i). The planners think about the beliefs and objectives of the learners,
- (ii) Attention is paid to learning process and learner-related atmosphere.
- (iii) Systematic organisation of behavioural objectives,
- (iv) To develop that learning material which will help in fulfilling the objectives proposed and which are often used by students,
- (v) To bring the main factors—the student, the teacher and subject-matter closer
- (vi) To keep a keen eye on the progress of students through proper Feedback and by Strengthening the Management System.

3. Social System—In any Teaching Model, the social system tells us of the interaction between the students and teachers. Even in Mastery Learning there is very important role for the teacher. In this model, the teacher helps the students gain mastery over the subject. While doing this, he also keeps an eye on their individual differences. He can do this by sub-dividing the subject-matter into small units. The responsibility of the failure of this is totally on the teacher rather than on the students. Similarly, he is equally responsible for the success of his students.

4. Support System—This model believes in analysing the fact whether the student has gained mastery or control over the subject or whether he has achieved the required objectives. This model does not believe in evaluation of the entire class performance. This model emphasizes upon diagnostic tests. If the objectives are clear and teaching is conforming to the set standards, then Mastery Learning can be implemented properly. Another system recommends evaluation only through trained teachers. In evaluation there are various diagnostic tests in every unit so that the performance of the students can be measured. These diagnostic tests represent such special programmes as every student has to undergo. The data received after these diagnostic tests is used to solve the difficulties of the students and to instruct them.

5. Application of Mastery Learning Model :

- (i) In the pace of learning every student works at his own pace,
- (ii) This model helps in developing self-initiation,
- (iii) This helps in developing problem solving qualities,
- (iv) This model encourages self-analysis and inspiration,
- (v) This model also helps the slow-learners in gaining self-confidence and hope for success.
- (vi) It helps in obtaining a satisfactory level of performance in school-subjects.

(C) INQUIRY TRAINING MODEL

- Write in detail about Inquiry Training Model of teaching. [MDU, 2018]
or
□ Write a short note on Inquiry Training Model.
or
□ Describe in brief the structure and characteristics of Inquiry Training Model.
or
□ What do you understand by the term Inquiry Training? How can you use Inquiry Training Model to provide training in systematic inquiry to your students? Illustrate with examples.

Ans. :

Inquiry Training Model

(1) **Focus**—The main objective of this model is to give rise to cognitive skills of the students. In this, the student organises the self-researched facts and concepts in a logical manner. Through this method the development of individual capabilities can be achieved in a better way. One objective of this model is that the student should be self-reliant to learn and enquire about various things. The students are themselves inspired to find solutions to difficult problems, which can be done by them in a systematic manner.

(2) **Structure or Syntax**—There are five phases of structure or syntax :

(a) **Students, Confrontation with the Puzzling Situations**—In this phase the teacher presents a problematic situation to the students and gives information regarding methods of inquiry. No doubt, the main objective is to give rill to new knowledge, though earlier inquiry is based on common knowledge. In the beginning only those questions should be asked which have "Yes" or "No" for an answer. In this method the student is also independent to take the help of his class-mates. The student collects enough information for the systematic analysis of his hypothesis. And for this, there is freedom of reading books and other reference material.

(b) **Data Gathering Operations of Verifications**—In this phase, data is collected for proper verification for this, the teacher will ask the students such questions as have "Yes" or "No" for an answer. Secondly the students collect necessary information about whatever they see or experience. During verification they can ask questions regarding objects, properties, conditions and events. They can ask questions relating to objects like- "What is this object made of" etc. In questions relating to events, verification is done regarding its happening.

This way the teachers can widen the scope of inquiry done by the students.

(c) **Data Gathering Operation of Experimentation**—During experimentation, the students introduce new elements for experimentation. Experimentation has two parts-Exploration and Direct testing. In Exploration, things are observed under changing conditions and in Direct testing, certain hypothesis or principle is tested. In brief, it can be stated that during experimentation data is collected, hypothesis is built up and then testing is done. The teacher can help the student in this work so that he does not waste time in building up wrong hypotheses.

(d) **Organization of Information**—In this phase the collected information is organized. The teacher can ask the students to arrive at the results and can also organize the results of certain events. But it is possible that the students can commit certain errors in explanation. Rather than telling one student all the students can be told to give explanation so that comparative differences can be observed and the explanation can be presented in its true form.

(e) **Analysis of the Inquiry Process**—In this phase the students are asked to analyse the methods they adopted for inquiry. Ineffective questions are classified and important information that could not be obtained is dwelt upon. In brief analysis and evaluation of the entire inquiry, collected data or information are done.

(3) **Social System**—In this model Social system is an important element. According to this, in the teaching learning process, both the teacher and the student play very significant roles. The teacher encourages the students by asking questions. In the beginning the teacher exerts full control, but gradually the students get more and more free and the teacher's control becomes less. There is a healthy interaction between the teacher and the student in which the student's ability to solve difficult problems and his scientific attitude is developed. The success of this model depends upon the mutual co-operation between the teacher and the student.

(4) **Support System**—This model is used for solving the different problems related to the text books. The students are made to experience many different problems and various examples are presented.

(5) **Application**—The use of this model is generally helpful for scientific subjects. The students learn to analyse various types of collected information. Actually this model was developed for subjects like natural Science. But in literature this model is used to solve murder mysteries. To solve any problematic situation, this model is used.

Example of a Problem Situation—

For the interaction of the students and the teacher the following situation was created. The teacher presented the following problem before the students and encouraged their interaction by analysing the following inquiry :

Naresh : Was there any naked wire left in Mr. Sharma's house?

Teacher : No.

Ram : Was any previously burning thing, that was later put off, kept in Mr. Sharma's house?

Teacher : No.

Sham : Is Mr. Sharma habitual of smoking cigarettes?

Teacher : Yes.

Mohan : Did any other friend visit Mr. Sharma's residence, that day?

Teacher : Yes.

Sohan : Are the friends visiting Mr. Sharma fond of smoking?

Teacher : Yes.

Sohan : Did any friend light a cigarette in Mr. Sharma's house?

Teacher : Yes.

Sohan : Did he throw the match-stick on the clothes lying on the chair, after lighting the cigarette?

Teacher : Yes.

Sohan : Then the Cause is confirmed, that the fire in Mr. Sharma's house has

resulted, not because of short circuit, but due to the carelessness of his friend. The fire became massive and Mr. Sharma had to undergo a heavy loss, due to his friend.

Characteristics of Inquiry Training Model

- (1) This model focusses an independent type of inquiry.
- (2) This model revolves around intellectual confrontation.
- (3) In this model, "Yes" and "No" types of answers are given.
- (4) The students develop the hypothesis and examine it.
- (5) The students do not ask the teacher "How"?
- (6) In such a model inquiry cannot be programmed.
- (7) The students continue asking questions.
- (8) In this model, the teacher and the student have equal importance.
- (9) The main role of the teacher is to present the problematic situation in front of the students.
- (10) In the beginning, there is control of the teacher, but gradually the student understands the rules of the inquiry and becomes independent. Then the control of the teacher becomes less.

(D) GLASER'S BASIC TEACHING MODEL

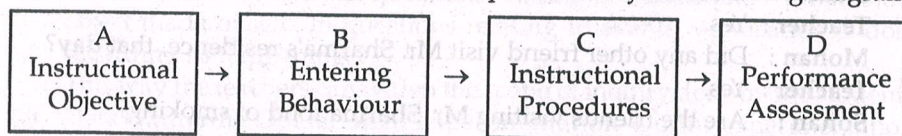
- ❑ Describe Glaser's Basic Teaching Model. Also describe it in terms of fundamental elements.
- OR
- ❑ Describe the Glaser's Basic Teaching Model. [CRSU, 2018]
- OR
- ❑ Describe the fundamental elements, characteristics, merits and demerits of Glaser's Basic Teaching Model. [CBLU, 2018]

Ans.

Glaser's Basic Teaching Model

Robert Glaser developed basic teaching model in 1962. He was an American psychologist. This model explains the relationship between teaching and learning. It is a basic model based on basic principles of psychology. Nelson L. Bossing called the model the classroom Meeting Model.

The basic teaching model divides the teaching process into four components or parts. It is useful in many ways. It helps to organize the great body of facts, concepts and principles. This model can be represented by the following diagram :



Thus above diagram represents the basic teaching model. The four parts shown in diagram are as follows :

- (A) Instructional Objective
- (B) Entering Behaviour
- (C) Instructional Procedures
- (D) Performance Assessment

These four parts of the model represent the basic divisions : Box A denotes

instructional Objectives (IO), Box B denotes Entering Behaviour (EB), Box C deals with Instructional Procedure (IP), and Box D relates to Performance Assessment (PA). This diagram applies to four components of the basic teaching model, with its connecting arrows shows only the major sequence of events in the instructional process.

Lines with connect components are called feedback loops. The three feedback loops as shown in the diagram connect performance assessment (PA) with each of the earlier components of the model.

This teaching model is called basic teaching model because the basic principles of psychology have been used in this Glaser's Teaching Model. Robert Glaser has tried to clarify the Education process in the class through this model.

Components of the Basic Teaching Model

(A) Instructional Objectives (IO) : Instructional objectives refer to those objectives which the student should attain upon completion of a segment of instruction. In theory, objectives can vary and scope & character.

One way to define instructional objectives is to identify the end product of instruction in terms of observable performance. The way to determine whether or not a student has learned something is to observe the outcome of his behaviour. The outcome has been referred to as behavioural objectives. These end products are referred as terminal performances. In most schools these are verbal performances or motor skills. Proper management of this component results in the changes which we call learning or achievement. Hence, instructional objectives are determined before initiating the task of teaching. These objectives are determined by the teacher. It is very important to know and decide, why that activity is being carried out. The same thing is applicable to the field of education. The main purpose or objective is to bring about a change in the child's behaviour. How this change is to be brought about through the teaching process is explained as instructional objective.

In short, IB are defined as the objectives which the students should achieve at the completion of particular instruction. These objectives are based on Bloom's Taxonomy of Behavioural Objectives. The objectives may be stated in general, specific or behavioural terms. Mager's approach is adopted for stating cognitive & affective objectives in behavioural terms.

(B) Entering Behaviour : Entering behaviour describes the student level before the instruction or teaching begins. It refers to what the student has previously learned his intellectual ability and development, his motivational state, and certain social and cultural determinants of his learning ability.

Entering behaviour is a more precise term than the usual alternatives such as human ability, individual differences and readiness.

Schools tend to define entering behaviour in terms of the traditions, curriculum, rather than in terms of student ability, experience and interest. A student with the more abstractive ability and interest of the mathematician, therefore, may be viewed as having a higher level entering behaviour than that of a student whose major interest and ability are in creating the visual, geometric forms of modern painting and sculpture. Although the model gives priority to the selection of instructional objectives over the assessment of entering behaviour, in practices these two components must interact. This model implies a greater emphasis on teacher competence than on personal charisma without objecting to a useful combination of the two.

In simple words, entering behaviour describes the present status of the student's knowledge & skill in reference to a future status the teacher wants him to attain. Entering behaviour, therefore, is where the instruction must always begin. Terminal behaviour is where the instruction ends or concludes.

In this way, teaching can be described as getting the student from where he is, to where we would like him to be – as moving from entering to terminal behaviour.

In more simple way, the earlier behaviour of the students, before he enters the teaching process is called entering behaviour. This entering behaviour includes the previous knowledge of the students, level of intelligence, motivation and learning abilities.

In ordinary words it can be said that all the qualities that are needed for the future of the children are known as entering behaviour. It is the teacher's duty to find out whether the student has the exceptional qualities required for learning or not. A teacher selects his instructional objectives based on these capabilities of the students. Keeping in mind all the three elements, cognitive, affective and conative, the level of the students is decided.

Entering behaviour is kept at the second place in Glaser's Teaching Model, but it is very important to know entering behaviour of the students.

(C) **Instructional Procedure** : Instructional procedure describes the teaching process; most decisions a teacher makes are on these procedures. Proper management of this component results in those changes in student behaviour which we call learning or achievement. Procedure must vary with the instructional objectives. Generally instructional procedures describe procedures for teaching skills, language concepts, principles and problem solving.

On the basis of objectives and entering behaviour of the learner, the teacher selects the content, teaching strategy and proper audio-visual aids. At this step, interaction between pupils and teacher takes place. Teacher presents the content matter before learners.

In this component, the relation of the instructional procedure is established with the activities that are conducted for teaching. Based on this, the teacher takes his final decision. These activities should not be static. There will remain a difference between these instructional objectives and activities and the effect is bound to show on teaching and learning pattern.

So, instructional procedure is the creative part of the instructional objectives. In this step, the interaction between the teacher and the student takes place. So the main purpose or objective of the instructional process is the achievement of these objectives.

(D) **Performance Assessment** : Performance assessment is the process of measuring the student's auxiliary and terminal performances during and at the end of instruction. Auxiliary performances are behaviours which must be acquired at the lower levels of a learning structure before the terminal performances are acquired at the higher levels. For example, in the teaching of a principle, the teacher must determine whether the student has acquired the component concepts, as auxiliary performances, before proceeding with the instruction which arrange these concepts in the proper relationship for the learning of the principle.

Terminal performances refer to the end products of instruction – usually verbal performances.

The emphasis on the measurement of both auxiliary and terminal performances means that you should not think of performance assessment as occurring only at

the end of unit or course. The assessment can occur whenever the teacher or student needs information about the adequacy of the student's present learning for subsequent instruction.

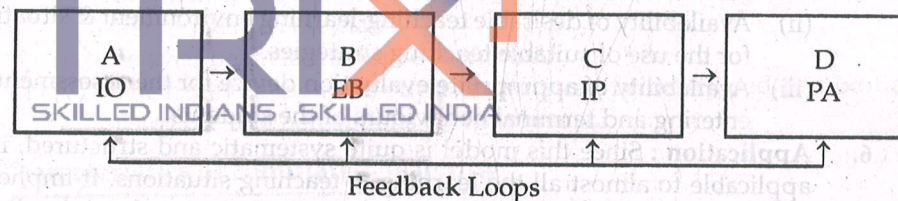
Hence, the teacher tries to evaluate the outcome of teaching. It can be done with the help of tools & techniques of evaluation. This model is flexible in the sense that if a student shows low achievement in attaining the desirable objectives, feedback is provided till he achieves the desired instructional objectives.

The task of performance assessment involves the tests and observations used to determine how well the student has achieved the instructional objectives. If performance assessment indicates that the student has fallen short of mastery or some lesser standard of achievement, one or all the preceding components of the basic teaching model may require adjustment. The feedback loops show how the information provided by performance assessment feeds back to each component.

Here, personality of the teacher is not the central element in the present conception of the teaching process.

This model indicates that teaching includes a broad range of decision and practice – much of which requires little or no personal contact between teacher and student.

The traditional nature of the personal contact between teacher and student can be modified by using technological devices such as team-teaching etc. Here, the model implies greater emphasis on the teacher competence than on personal charisma.



[Fig. : Glaser's Basic Teaching Model]

With this element, feedback of the other three elements is obtained i.e. student and the teachers become aware of their success and failures. Through this personality assessment, analysis of first and third element is done. Gaps between these are overcome. For this purpose, methods like observation, rating scale, questionnaires, projective techniques & interview etc. are used.

All the above four elements are inter-related to one another. One element affects another. So the teacher should consider the reliability of these four objectives and then decide the various methods of teaching.

Description of Glaser's Basic Teaching Model in terms of Fundamental Elements

Glaser's model may be described in terms of the fundamental elements as under :

1. **Focus** : It attempts to pin-point the process and major activities comprising the entire teaching-learning process. It also brings into light the sequence to be followed in the instructional process.
2. **Syntax** : In this model, the flow of activities is sequential. First of all the objectives to be followed are fixed in accordance with Bloom's Taxonomy. Then the potentiality of the learners in terms of their entering behaviour

is assessed. Thereafter in the light of their entering behaviour, instructional work is carried out for the achievement of objectives. Performance assessment is the last phase.

3. **Principles of Reaction** : Main principles of reaction are as follows :
 - (i) **Principle of Interdependence** : The students' responses are to be understood and dealt with in the light of the inter-action & inter-dependence process and assessment.
 - (ii) **Principle of Active Involvement** : It's proper execution needs a lot of activity on the part of the teacher. Understanding of the potential and difficulties of the students is required at every stage by the teacher in order to achieve the objectives.
 - (iii) **Principle of Follow up** : If the results do not match the objectives, deficiencies have to be located and corrective measures are to be applied.
4. **Social System** : The success of the model depends upon the ability and competing of the teacher in terms of various skills like formulation of objectives, use of proper strategies, techniques of evaluation etc.
5. **Support System** : The success of this model needs additional support in terms of :
 - (i) Availability of adequate pre-service and in-service activities to the teachers to acquire needed competencies & skills for using this model.
 - (ii) Availability of desirable teaching-learning environment & situation for the use of suitable teaching strategies.
 - (iii) Availability of appropriate evaluation device for the assessment of entering and terminal behaviours of the students.
6. **Application** : Since this model is quite systematic and structured, it is applicable to almost all the learning & teaching situations. It implies a personal contact between the teacher and the students. Also, it implies a greater emphasis on the competency of the teacher rather than on his personality.

2.2 STRATEGIES OF TEACHING

(A) SIMULATION

□ **What is Simulated Teaching? Describe its various steps. How is it useful as a Teaching Strategy?**

Ans.

Meaning of Simulated Teaching

The simulation process is as old as human beings on earth. Not only human beings but even animals use the technique of simulation to train their young ones to teach them to adjust in their physical environment. The use of simulation in teaching is comparatively very recent.

Simulation is emerging as a strong and an effective technique of teaching.

Simulation can be defined as 'Mechanism of feedback devices to induce certain desirable behaviour among pupil-teacher by role-playing of the teacher in their own group as an artificial situation of class-room teaching.'

According to Webster's Dictionary, 'Simulation is defined as giving the appearance of or effort of, to have characteristic.'

According to Tansy, 'Simulation is an inclusive term which contains these activities which produce artificial environments or which provide artificial experiences for the participants in the activity. It is reproduction of the reality.'

According to Fink, 'Simulation is the controlled representation of reality.'

Simulation means role-playing or rehearsal in which the process of teaching is carried out artificially. It is based on socio-drama. The main aspect of simulation in teaching is the introduction of a student-teacher to teaching in a non-stressful conditions. Simulated teaching is a sort of teacher's training technique. This technique is used to change the teacher's behaviour. This type of teaching is also known as 'role playing', 'pilot training', 'artificial training', 'laboratory method', 'simulated social training' etc.

Simulated teaching is used prior to the class-room teaching practice. In this role playing method, the pupil-teacher plays both the role i.e. the role of pupil and the role of a teacher. In the class, one pupil-teacher becomes a 'teacher' and the rest play the role of students.

Basic Assumptions of Simulated Teaching

- (i) Teacher behaviour is modifiable by the use of feedback devices.
- (ii) For effective teaching, some teacher-behaviours are essential.
- (iii) Through role playing the psychological appreciation of the class-room problem will grow & develop in the pupil-teacher a basis for handling the problem in the class.
- (iv) Teacher behaviours can be identified.
- (v) The behaviours of the pupil teachers can be developed & modified by using the role perceptions & role playing.

Characteristics of Simulated Teaching

The important characteristics of simulated teaching are as follows :

- (i) This method is effective for the practice of teaching skills by the pupil-teachers.
- (ii) It is a very convenient method.
- (iii) This method can be used in research work.
- (iv) The main characteristics of this method is that it can be used for rehearsal before going to the class room teaching.
- (v) Effective feedback can be provided by this method.

Procedure or Steps of Simulated Teaching

Before starting teaching work in the real class, training through the technique of simulated teaching is provided to the pupil teachers. The following are the main steps in this technique :

1. **Assignment of Role** : In this technique first of all the roles are assigned to the pupil teachers. All the pupil-teachers are assigned all types of roles. In this, such pattern is adopted that all the pupils may function as a teacher, student and the observer.

2. **Selection and Discussion of Social Skills for Practice** : After assigning the roles, some specific social skills are selected and these are discussed. Then the topics related to the selected skills are practiced. For practice, these topics are selected in which the related skills get fit in. First of all, one topic is selected for practice,

then it is decided which should be the other topic so that the other pupil-teachers may also go for practice in accordance with their assigned roles.

3. **Preparation of Work Schedule :** Then it is decided which pupil should start the simulated teaching. When it should be finished? Who should give it a finishing touch? Who will intervene? etc. Hence the entire work schedule is to be prepared well in advance.

4. **Determination of Observation Technique :** In this step decision is taken about the type of observation technique which is to be adopted. It also includes which types of data are to be collected and how these data are to be interpreted?

Hence, this step is concerned with the process of evaluation. It also decides how the collected data is to be presented to the actor "pupil-teacher"?

5. **Organisation of First Practice Session :** After all the above mentioned preparations, the first practice-session is organized. Feedback about the teaching is provided to the pupil-teacher who participates in the practice-session. If necessary, essential modifications for the second session can be made. The data regarding first practice session is recorded so that the teaching behaviour can be evaluated on the basis of such recorded data. This step also includes the mutual consultation and discussion. In this way this session goes on and every pupil teacher enjoys his turn for practice.

6. **Preparation or Altering the Procedure :** After the first session, preparation is made to bring changes in the procedure or process. In this, topics are changed. Besides this, pupil-teachers, observers and teaching skill are also changed. Hence, in this changed procedure also the roles of the pupil-teachers are assigned and all the pupil-teachers are provided with opportunities for practice. In this way, this cycle goes on till the pupil teacher is trained.

Precautions for Simulated Teaching

The following precautions should be observed while starting simulated teaching process :

- (i) In this technique, the pupils of the same subject should go for practice.
- (ii) Each pupil-teacher should be provided with the opportunity of playing the roles of the teacher and the observer.
- (iii) For practice, the pupil-teacher should prepare micro-lesson plans.
- (iv) During the technique, the teacher and the observer must stay in the class. It will lead to seriousness & discipline.
- (v) At the end of the teaching, there should be a discussion for diagnostic purposes. In this discussion, good activities and behaviours should be appreciated. Some suggestions should also be presented in order to improve the behaviours.

Advantages of Simulated Teaching

All the characteristics of this technique function as its advantages also. Besides these, the following are some other advantages of this technique :

1. By using this technique, relationship between theory and practice can be established.
2. This technique helps in acquiring some class-room manners.
3. By this method some feedback can be provided to the pupil-teachers and they get the opportunities to use their insight for taking decisions regarding their own activities.

4. The use of this technique enables us to study and analyse the teaching problems.
5. Through simulated teaching, help can be sought to understand classroom management and behavioural problems related to it.
6. Self-confidence in teaching develops through simulated teaching. It creates self-confidence to face the problems personally.
7. Practice of various types of questions is possible through simulation technique, e.g. open thinking questions, closed thinking questions.
8. This technique helps in explaining the behaviour problems in the classroom and contributes in its solution.
9. The pupil-teacher enjoys the opportunities to play various roles, e.g. teacher's role, student's role & the role of the observer.
10. Almost all the researchers have found that the interest and the enthusiasm of the person's learning through simulation technique increase. It is the most important contribution of this method, because if the motivation arouses in the learner, various problems get themselves eliminated. Besides motivation, novelty in the classroom teaching is also maintained.
11. This technique makes the person more aware of the role.
12. This technique leads the development of decision making ability in the pupils. Such a development facilitates the further development of skills to solve more complicated problems.
13. In 1968, Gordon's study revealed that the simulated teaching is very useful for gifted & slow learners.
14. In the traditional teaching, the teacher occupies the main position. The pupils sit passively. They do nothing. But in this technique, both the teacher and the taught remain active.
15. The simulated teaching can develop the capacities to present the classroom teaching in a summarized manner.
16. This technique helps in developing the ability in the pupil-teachers to ask the questions. The practice of asking questions in a sequence is possible by this technique.
17. This technique can work more effectively with the help of micro-teaching technique. Hence, micro-teaching and simulated teaching are closely related.
18. By this technique the ability to present the content in a sequence can be developed.
19. There is self-monitoring in simulated training. It reinforces the student-teachers for the desired behaviour.
20. It helps in developing efficiency in student-teachers and in predicting consequences of teaching before going to actual class-room.
21. As a result of role-playing, it helps in the development of critical thinking in student-teachers.
22. By simulation technique, capacities to solve the problems in a logical manner by adopting the teaching steps can be developed.
23. This technique can replace the demonstration lesson, because all the teachers are not good teachers and all cannot demonstrate their best.

Limitations of Simulated Teaching

- (i) The use of simulation cannot be made in all subjects of the curriculum.

- (ii) In case of small children, simulation cannot be used conveniently because mechanism is so difficult for them to follow.
- (iii) This method requires a lot of preparation on the part of the teachers. Very few teachers are ready to take up the extra burden which is required to make the use of this technique a success.
- (iv) Highly sophisticated audio-visual aids and computers are used for simulation in advanced nations which are not affordable in our country's schools.
- (v) Learning is a serious activity which is highly individualized needs concentration on the part of the learner. Simulation is a play which lowers down the seriousness of learning. It is doubtful whether any worthwhile learning takes place through simulation.
- (vi) The pupil-teacher playing the role of an observer can make the wrong recordings.
- (vii) At the initial stages, some may face difficulty in practicing the teaching skills, such as asking questions.
- (viii) No emphasis is given on teaching the content.
- (ix) It requires the supervision by training personnel which are generally not available or not devoted to their duties.

(B) BRAIN-STORMING

- ❑ What do you mean by 'Brainstorming'? Discuss it as a teaching strategy.
- OR
- ❑ 'Brainstorming can be used as a teaching strategy.' Discuss.

Ans.

Meaning of Brainstorming

Brainstorming is the name given to a situation when a group of people meet to generate new ideas around a specific area of interest. Using rules which remove inhibitions, people are able to think more freely and move into new areas of thought and so create numerous new ideas and solutions. The participants shout out ideas as they occur to them and then build on the ideas raised by others. All the ideas are noted down and are not criticized. Only when the brainstorming session is over are the ideas evaluated.

This is the tradition how brainstorming is done. Brainstorming can also be defined in other ways too. It is a process for generating new ideas. Brainstorming is 'a conference technique by which a group attempts to find a solution for a specific problem by amassing, all the ideas spontaneously by its members'. It is the view of Alex Osborn.

The brainstorm is to use a set of specific rules and techniques which encourage and spark off new ideas which would never have happened under normal circumstances.

Hence, brainstorming can be explained in the following way :

- (i) It is a process designed to obtain the maximum number of ideas relating to a specific area of interest.
- (ii) Brainstorming is a technique that maximizes the ability to generate new ideas.
- (iii) Brainstorming is where a group of people put social inhibitions and rules

aside with the aim of generating new ideas & solutions.

- (iv) Brainstorming is a time dedicated to generating a large number of ideas regardless of their initial worth.
- (v) Brainstorming is a part of problem-solving which involves the creation of new ideas by suspending judgement.

Brainstorming can be traditional brainstorming and advanced brainstorming. Traditional brainstorming is the normal view of brainstorming where a group of people sit in a room and shout out ideas as they occur in them. They are told to lose their inhibitions and no ideas will be judged so that people are free to shout out any ideas at all without feeling uncomfortable.

People should build on the ideas called out by other participants. The purpose of this is to gain as many ideas as possible for later analysis. Out of many ideas suggested, there will be some of great value.

Advanced brainstorming is an extension of the traditional brainstorming scenario and makes the whole process easier and more effective. Advanced brainstorming builds on the current methods of brainstorming to produce more original ideas in a more efficient way.

Specialized techniques, better processes and better awareness combined with new technologies make traditional brainstorming a less frustrating process. Most of the problems associated with traditional brainstorming disappear as a more effective process is used.

Advantages of Brainstorming

Teachers & students have cited many advantages of brainstorming as they have used this technique. These advantages are as follows :

1. **Brainstorming Stimulates & Provides a Varied Instructional Approach** : It generates enthusiasm and eagerness to join in by its open invitation to participate.
2. **Brainstorming is Highly Motivating** : Students who use it allow their verbal, articulate classmates to dominate question and answer periods get the urge to participate. They are not degraded for wrong answers and feel a real sense of contribution as their suggestions are noted on the project sheets.
3. **Brainstorming Increases Task Focus** : The brainstorming group is kept on target with very little pressure from the group leader because of the structure and ground rules. Destructive activities of committees, such as personal commentary, rejoinders, editorializing etc are eliminated in this process.
4. **Brainstorming Promotes Spontaneity and Creativity** : The members of the group begin to link ideas and 'bounce suggestions off the group' in a sounding-board procedure that gathers momentum as the session continues. Mental power is fully unleashed in this positive atmosphere.
5. **Brainstorming is Efficient and Productive** : Scores of ideas and suggestions or problems and obstacles can be listed in a few minutes. Parallel suggestions and obstacles lead the group toward sound 'next steps'.
6. **Brainstorming Involves Participants in the Ownership of Ideas** : The participants feel greater kinship for their product as they assume group ownership of their ideas & suggestions. Problem solving is made much easier when communal commitment is guaranteed.
7. **Brainstorming Provides a Permanent Record and Aids in Developing Solutions to Problems** : The results of the sessions can easily be reproduced or re-used to design alternate procedures and programmes for solving problems or

meeting objectives. The production of the group takes on value as a permanent evaluation record and is testimony to individual and group effort.

8. **Brainstorming encourages creativity** : Brainstorming technique is widely used in industry and academia to encourage participants to generate ideas in an unhindered manner. In an academic context, brainstorming encourages students to participate actively in idea generation exercises and experience the benefits of a multidimensional approach to analyzing problems or solutions. Asking interpretive questions, rather than "yes/no" questions, lead to productive brainstorming.

Scope of Brainstorming

The brainstorming technique is applicable to all levels of the engineering curriculum and to all teaching scenarios labs, lectures or discussion sections. It is especially useful in design courses since it calls for a multiple-answer, multiple-dimension methodology rather than the usual single-answer approach to problems. The brainstorming technique can be implemented in a number of different ways as follows :

1. **Structured** : The whole class is given a topic to discuss and each student is called upon to contribute an idea. The advantage of this method is that all students participate and the more vocal students tend not to dominate the discussion. Its disadvantage is that the discussions usually do not flow free as in an unstructured session, and can make some students feel pressured & uncomfortable.
2. **Unstructured** : Students are allowed to contribute ideas as and when they think of them. This approach allows for a freer flow of ideas and a more relaxed environment. Its drawback is that it can lead to the students not responding at all, or to a few students dominating the discussion.
3. **Group** : This is a structured approach. The class is broken into small groups, and each group presents its ideas after an allotted amount of time. Its advantage is that the students are likely to be more at ease and willing to express their ideas. The group work also promotes synergy and communication among the students. One obvious drawback to this method is that it is more time-intensive than the other two methods.

Guidelines

The following guidelines should be followed with any of the above methods :

1. Make sure that everyone agrees on the question or topic of the brainstorm. Write it down on a chalk board, or give hand outs.
2. Never criticize students' ideas or allow students to criticize each other.
3. Do not allow students to reject ideas initially. Ideas should not be weeded out until the end of the brainstorming.
4. Write every idea down. Use a flip chart, black board, overheads or other visual methods.
5. Use the words of the speaker when recording. Do not interpret.

(C) LECTURE AS TEACHING STRATEGY

□ Discuss the lecture as a teaching strategy.

Or

□ Discuss the merits and demerits of Lecture Method.

[MDU, 2018]

Or

□ Describe main principles and advantages of Lecture Method of teaching.
[CBLU, 2018]

Ans. Lecture as Teaching Strategy : When a teacher takes the help of a lengthy or short explanation in order to clarify his ideas or some fact, that explanation is termed as a lecture or lecture method. Actually the lecture method is not a new method, but it is traditional autocratic method. Some scholars feel that the lecture can be made lengthy or short as the situation is. Hence, the lecture is the easiest method of imparting knowledge to the pupils.

Remember that the lecture is a one channel method. In this, presentation is more emphasized, but the pupils function as passive listeners. This creates dullness in the class-room as interaction between the pupils & the teacher ceases to occur. In other words, pupils get a few chances for responding as we use the lecture method. With this, pupils get no motivation for acquiring knowledge.

Also, the teaching material gets more complicated & hence, the pupils start feeling boredom. The lecture method can be used in the following three situations :

- (a) To achieve the lowest objective of the cognitive aspect.
- (b) To achieve the highest objective of the cognitive aspect.
- (c) To achieve 'the affective' objectives.

It is a matter of experience that as in the lecture method, the main teaching aspects are not included carefully, therefore, most of the teachers usually remain unsuccessful in achieving these objectives. This is the reason of accepting the lecture method as communication strategy only.

In the field of education, lecture method is used very frequently. This method is used in order to acquire knowledge and concepts.

Main Principles Lecture Method

This method adopts the following principles :

1. **To save time** : In comparison, lecture method consumes less time than the text book. There are many occasions when the students need to see the time. We can save the pupils' time by lecture method. A comprehensive subject matter can be presented through lecture method which saves the time as well.
2. **To review** : Teacher can review the main aspects of some topic and can provide guidance to the students through this lecture method.
3. **To Summarize** : Sometimes students become upset & confused when they see the comprehensiveness of the subject-matter. Then the summarization & briefing of that matter becomes necessary to make the pupils comfortable. This can be done very conveniently through lecture method. Students can study the subject-matter from the books very conveniently after listening the lecture.
4. **To Give Assignment** : While giving home assignments, teacher should use lecture method. Teacher should brief the students regarding the given assignment i.e. how to do that assignment and what is its utility.
5. **To Motivate** : The teacher should present some aspect of the new topic which he is going to start in the class. It would calm down the pupils' curiosity and would motivate them. Also, such a lecture would help the students understand the subject-matter when the same is presented to the students.
6. **To Expand Contents** : If the students want some advance subject matter in addition to the text written in the book, this lecture method is very useful for this purpose. Sometimes the matter published in the books is in brief or incorrect, then

the lecture method proves very useful in such a situation. Similarly teacher's personal experiences may be very useful to the students if presented in Lecture form, but the condition is that the teacher must know how to present those experiences. It is essential that the teacher must know what the next material exists in the text book, so that the same material can be presented to the students.

7. **To Clarify :** A lesson might have some such aspects which may be difficult to understand for all the students. Similarly certain technical terms may be difficult about which students know nothing. The teacher can clarify these technical terms and theories. Hence, teacher's lecture of a few minutes can save the students' valuable time.

8. **Preparing students to Undertake Projects/Activities :** Whenever the students are assigned some project or activity, the teacher should deliver a lecture to the students. It would reduce the wastage of time in searching out the material & wastage of energy.

Precautions While Using Lecture Strategy

The following precautions should be observed while using the lecture method :

1. Lecture is an act and a continuous effort is needed in order to gain success in it.
2. The person delivering his lecture should know the subject fully.
3. The contents of the lecture should be organized systematically according to the interest & mental level of the pupils.
4. Any easy language, meaningful and interesting illustration should be used in lecturing.
5. Important points should be emphasized during lecturing.
6. While lecturing, an effort should be made to avoid non-relevant references & to establish contact between one topic & the other.
7. The lecture should be interesting. The book or the notes should not be used while delivering a lecture.
8. An appropriate teaching material should be used while lecturing.
9. The lecture should not be so lengthy & formal that the pupils start feeling boredom.
10. The lecture should follow an interaction between the teacher & pupils.
11. The lecture should be delivered for the prescribed time.
12. Lecture method should be accompanied by some other methods so that the pupils may follow the lecture properly.
13. Teacher should have cheerful disposition in the class, otherwise learning cannot be effective.
14. The teacher should allow the students to express their opinion in the class frankly.
15. The lecture should be well planned.
16. If the lecture is lengthy, then it should be divided into different topics.
17. The teachers style of speaking should be natural.
18. The teacher can have the notes with him, but he should not look at these notes frequently. If he looks them again & again, the lecture would be ineffective. Therefore the teacher should remember the contents of the lecture by heart.
19. Students should be encouraged to take notes of the lecture being delivered.
20. A written examination after the lecture gives feedback to the teacher

- regarding the effectiveness of his lecture.
21. Lecture method should be used at some appropriate time, e.g. to start a new subject, to provide additional material to the students.
22. During lecturing, the teacher should be witty and humorous. He should add some entertainment element in his lecture.

Advantages or Merits of Lecture Method

1. **Direct contact between the teacher and the students :** In lecture method, teacher comes in direct contact with the students. Hence, while lecturing, the teacher can make the subject matter very clear by his own interpretation, gestures etc. Sometimes the teacher can express his ideas by gestures, facial expressions, tone as well as by movements of various limbs of the body. The words spoken by teacher energize the students with inspiration and enthusiasm.
2. **Control over Students :** Since, the teacher comes in direct contact with students, he can keep them under his direct control. He serves the students from being misguided. The students can focus on the main points of the lesson.
3. **This method is economical also :** In this modern age, the size of the classes is swelling. Hence, in these more populated classes, it is the only practical method for guiding the students. India is a poor country. Small classes cannot be made due to scarcity of financial resources. At present, when the literacy is being over emphasized, this significance of this method cannot be ignored.
4. **The teacher comes well prepared with his lecture in the class :** In case if the teacher has well prepared his lecture & has delivered it in the class effectively, it can save a lot of time of the students. A good preparation on the part of the teacher leaves a good impact on the students. If the teacher is very much enthusiastic for his own lecture, it will affect the students positively. A sense of hard work in students too will arouse.
5. **Lecture method presents the subject matter in a systematic way :** In lecture method, subject matter can be presented systematically. The difficult and complex ideas are explained in simple manners. If the students fail to understand something, the lecture can be repeated.
6. **Development of Power of Concentration :** This method enables the students to develop their power of concentration. The teachers concentrate on their subject matter and express their ideas.
7. **Keeps students alert :** During lecturing, the teacher can keep the students in alert position by asking various questions.
8. **Useful for Current Affairs :** Social studies include social events. It is possible such events are absent from the books. The teacher throws light on those events through lectures.
9. **Economy of Time :** Through lecturing, a teacher can explain most of the complex things in a very short time. For example, topics like inflation and devaluation can be explained very clearly through lecturing. In other methods, one has to join the long process of discovery.
10. **Motivation for plan or an activity :** Teacher's lecture delivered before executing the plan proves very useful.
11. **Supplement the Information gathered by the students :** Whatever the

the lecture method proves very useful in such a situation. Similarly teacher's personal experiences may be very useful to the students if presented in Lecture form, but the condition is that the teacher must know how to present those experiences. It is essential that the teacher must know what the next material exists in the text book, so that the same material can be presented to the students.

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students acquired as a result of their own efforts is not complete. A lecture delivered by the teacher before starting some project supplements the knowledge. This can be done with the help of lecture method.

12. **Helpful in different topics** : There are some issue in social sciences which cannot be considered as simpler. There are such items which cannot be understood by studying books only, such as, nationalization of banks, inflation, satyagrah etc.

Through lecturing, these difficult topics can be classified very conveniently by the teacher. Students can be saved from joining the waiting lots for research etc. even for small informations.

13. **Importance in increasing students experiences** : As the students listen the lectures of the teachers, they get the experience of listening. In adult life, lecturing and communication or conversation are very significant. Students need some preparation for such situations. Hence, lecture method provides opportunities to listen and to note very rapidly.

14. **Helpful in making the subject interesting** : Through lecturing, a teacher can make the subject very interesting. He can explain the subject-matter with his interpretations and gestures through lecturing. The spoken words have more impact in comparison to the printed words. Sometimes a teacher can convey very effectively through his tone, gestures and facial expressions.

15. **Limitations of Question Answer Method** : There are some subjects in which question answer pattern is not useful while preparing their background. The livelihood in environment can be created only by statements. The causes responsible for adopting Buddhism by Ashoka can be explained effectively only by using lecture method, not by asking questions.

16. **Useful for Brilliant Students** : Lecture method motivates the brilliant students. Like teachers, they would be inspired to use the reference books and other helping material.

Demerits of Lecture Method

Lecture method has its merits as well as demerits. Its demerits are given as below :

1. **Not suitable for Indian Conditions** : It is not suitable for Indian conditions. It can match Indian conditions if the teachers have high class knowledge, training etc. Students should also be well disciplined. In our schools, neither the high quality teachers are available nor discipline in students is visible. Therefore, for such conditions this method is not appropriate.
2. **Lectures not interesting** : Most of the teachers waste their lecturing part with the irrelevant contents. This is done by those who are weak in their hold on the subject. In this method teacher gets opportunities for irrelevant talks.
3. **Not appropriate for school level** : Some students feel that this method is not suitable for school children because of their less maturity. This method is above their level. It is suitable for college & university levels, but not for school level.
4. **Students as passive listeners** : In this method, students are generally passive listeners. They don't participate in the lesson actively. Hence,

education becomes one-sided process. To make learning effective, it is necessary to provide opportunities to the students for speaking, questioning etc. But they are usually kept away from such experiences.

5. **Monotonous Classroom atmosphere** : It becomes monotonous if it is used without the help of other methods.
6. **Teachers pose as great scholars** : In lecture method, teacher tries to pose himself as a great scholar. For this, he makes the lesson more difficult intentionally. Hence, students fail to understand.
7. **As substitute of text-books** : This method degenerates into a substitute of text book. Our teachers are not experienced in using this method. There are a few member of teachers who collect material from various reference books for their lectures. Most of the teachers consult only a single book for preparing their lecture. Hence, the lecture method has become the substitute of text book.
8. **Ready-made material** : The students are given ready made and prepared material in this method. They don't get opportunity of learning by activities. They put their reliance on artificial or virtual learning.
9. **Unpsychological** : Since this method lacks knowledge by activities, it is un-psychological. In this method, students even don't get the opportunity to organize the subject matter. Hence their development gets blocked.

(D) DEMONSTRATION STRATEGY

- **What do you mean by demonstration? Explain 'demonstration' a strategy of teaching with regard to its various aspects.**

Ans. Meaning of 'Demonstration' : A demonstration is that method in which a verbal interaction between the teacher and the pupils is encouraged. As a result of this interaction, pupils acquire new knowledge very conveniently. Since, the demonstration method is used in the teaching of science subject, but this method can also be used successfully in the teaching of art, craft and various experimental subjects. Remember that for using demonstration method successfully, the teacher should also use essentially the techniques like verbal presentation, exposition and the description.

In order to make success of demonstration method, three things are necessary :

- (i) The objects being displayed during display should not be so small. These should be of such size that all the pupils may see without any difficulty.
- (ii) There should be no use of tough language and difficult words while demonstrating, but such a simple clear interesting language should be used that the pupils may understand the contents very easily.
- (iii) The pupils should be allowed to remove their difficulties by independent questioning with the teachers.

If the teacher follows these three points, his teaching will be effective & the pupils will follow the subject matter very easily.

Characteristics of Demonstration Method

The following are the characteristics of demonstration method :

1. Demonstration is done in a simple way and it occurs gradually.
2. Students find the solution of problems themselves and also they search out the problem themselves.

3. In this strategy, attention is paid to all the students, equally.
4. The goals & objectives of demonstration are very clear.
5. It is a well planned strategy.
6. Time is given for rehearsal before demonstration.
7. Experiments are demonstrated keeping in mind the time and weather.

Precautions for Using Demonstration Method

1. There must be a provision of black-board.
2. There should be excessive quantity of teaching aids so that it can be kept as stand by in case of any break-down.
3. There should be proper place for demonstration. The size of the class should also be kept in mind.
4. Questions should be asked to increase the reasoning and thinking power of the students.
5. The size of the teaching aids should be larger so that it is visible to all the pupils.
6. The sitting plan should be such that everybody may observe the activities during demonstration.
7. Noting down the important points should be recommended.
8. The teacher should be trained so that he may use the equipment properly.

Steps of Demonstration Method

The majority of the teachers use the demonstration method. Therefore it is important to explain the important steps involved in demonstration method.

1. **Planning and Preparation** : Actually, the demonstration method is a tough test of teacher's ability. Therefore he should get prepared for this. He must keep the following things in mind :

- (i) Subject matter.
- (ii) Lesson notes : It should also include the questions to be asked.
- (iii) Collection of essential equipment and their management.
- (iv) Rehearsal of experiments.

In spite of complete introduction with the related subject, the teachers & students must read the relevant pages of the text books. This will enable the pupils to concentrate on the related subject. Preparation of lesson-plan is also very important. It should include those principles which are to be explained or interpreted, those experiments should be mentioned which are to be demonstrated and detail of those questions should be given in a sequence which are to be asked from the students. This will make the task systematic. The badly prepared lesson plan discourages the students badly. The teacher should manage the equipment on the demonstration table intelligently, so that no problem arises during demonstration. In nut shell, the teacher should prepare the lesson minutely and very seriously.

2. **Introducing the Lesson** : It would be useless to start the lesson without motivating the students and without preparing them mentally. The lesson should be presented in a problematic way, so that the students may understand the significance of the related subject. As the teacher boost the motivation level and interest level of the students, he earns half the success. It is true that well begun is half done. Much depends on the appropriate beginning of the lesson. The teacher should start the lesson with his own personal experience or event.

The lesson can also be started with some simple and interesting experiment or very common event or some interesting story. The teacher must hold in mind the

importance of interesting experiment. Due to the very same experiment, the students talk about the issue of science which they have seen in or outside the school. The teacher must stretch the motivation and interest level of the students continuously throughout the lesson. The experiment should be such that the attention of the students may be drawn.

3. **Presentation of Subject Matter** : In demonstration, presentation of subject-matter is very significant. The teacher can present it in a comprehensive way. All depends upon the teacher. Inefficient teacher may present it in a narrow manner.

4. **Performance of Experiments** : The performance on the demonstration table should be ideal for the students. The demonstration table should be neat & clean. Untidy table may cause interruptions during demonstration.

5. **Chalk Board Work** : Chalk boards prove very useful in demonstration. Mainly it is used to achieve the two objectives :

- (a) Writing in brief the important results and principles.
- (b) Making important figures and diagrams.

The following principles should be followed while writing on chalk board :

(i) **Clear Writing** : Chalk board or black board is the mirror of the teacher's ability as the face is the mirror of the mind. The writing on the chalk board should be clear and readable.

(ii) **Proper Space Between Words** : There should be no over-writing. Spacing between words and alphabets should be appropriate.

(iii) **Method of Writing** : Always start writing from the left hand corner of the chalk board. Don't write in second line unless & until the writing in first line is completed.

(iv) **Writing of Paragraph** : So far as possible, the lines should be written in sequence and uniform symbols should be used.

(v) **Teacher's Hand Writing** : Generally, the students, copy their teachers. They will copy the teachers' handwriting, whether it is beautiful or poor.

(vi) **Use of language** : On chalk board, the students should write their own language. Necessary rectifications should also be incorporated.

(vii) **Division of Chalk Board** : Chalk board should be divided into two parts - one for figures & diagrams & other half for writing.

(viii) **Diagrams** : Appropriate and required diagrams should be made on chalk boards.

(ix) **Appropriate Labelling** : The diagrams should be labelled properly with legible words. Labelling should be done in bold letters.

6. **Copying and Supervision** : The demonstration will be incomplete unless & until the students do not copy summary and figures from the chalk board in their note books. The chalk board summary proves very useful because the chalk board language belongs to the students to the larger extent. Hence, it is not objectionable if the students write such descriptions. Children's brain is not so much developed that they can write notes on their own. Therefore, the students should copy from the chalk board. The children should see individually whether they are copying properly or not.

Merits of Demonstration Method

- (i) **Psychological Method** : It is a psychological method because it does not involve students' imagination. However, they are shown concrete objects and live specimens. Consequently they take active part in reading writing

process. It also motivates their interest in science.

- (ii) **Costly Apparatus** : It proves very useful when the apparatus is very costly and breakable, because students are very conscious while using this equipment with sensitivity.
- (iii) **Useful in Dangerous or Risky Experiments** : This method is useful in risky experiments such as preparation of chlorine, burning of hydrogen.
- (iv) **Economical** : This method is economical also when teacher faces the scarcity of equipments for individual students, he can demonstrate before the entire class. It saves time also because many experiments can be performed in a short period.
- (v) **Time Saving** : Time can be saved by using this method. In comparison to experimental method, this method consumes less time.
- (vi) **Based on Activities** : Although this method is not pupil-centred, even then pupils can be busy in various activities, such as supervision, seeking comments, seeking answers to questions, making figures etc. Sometimes, students can also be involved in performing or conducting the experiments.
- (vii) **Useful for Everyone** : It is an useful method for all types of students such as middle class, mentally retarded and gifted etc. Through this strategy all the students can be taught with the same speed.

Limitations of Demonstration Method

- (i) **Not based on Experiences** : In this situation, students cannot be benefitted with direct and personal experiences.
- (ii) **Not Child Centred** : It is not child centred. In this process, the pupil cannot participate actively. The ultimate responsibility of conducting the experiment lies with the teacher and he can do it as he wishes. Hence, to some extent, this method is authoritarian.
- (iii) **Not based on learning by doing** : There is no place for 'learning by doing'.
- (iv) **Obstacle in Progress** : Students lack the skills relating to the laboratory.
- (v) **Not based on Scientific Attitude** : This method does not provide the training of scientific method and hence the students lack the progress in scientific approach.
- (vi) **No scope for Individual Differences** : It does not make use of individual differences. The students with high intelligence are given the learning experiences with equal speed.

Conclusion : It is the most suitable method for teaching the secondary classes. If a teacher feels that the demonstration takes much time and he will have to work hard, then he can seek the help from the students. They can be asked to solve the questions on chalk board by inviting them to the chalkboard. Similarly, small groups of the students can be invited around the demonstration table. Students themselves can demonstrate. Arrangements and rehearsals can also be done by the students, but undoubtedly the teacher has to guide the pupils all the time. Hence, the objection, regarding non-availability of 'learning by doing' approach will be removed but his method and the teacher will get some relief to some extent.

(E) TEAM TEACHING

- **What do you mean by team-teaching? Describe the types and procedure of team-teaching.**

Ans. Meaning of Team Teaching : Team teaching is being used to create teaching conditions in the class. Class is also like a team. Team-teaching has been explained by various scholars with the help of different definitions.

According to **Carlo Olson**, 'Team teaching is an instructional situation where two or more teachers possessing a complementary teaching skills cooperatively plan and implement the instruction for a single group of students using flexible scheduling and grouping techniques to meet the particular instruction.'

According to **David Warwick**, 'Team teaching is a form of organization in which individual teachers decide to post resources, interests and expertise in order to devise and implement a scheme of work suitable to the needs of their pupils and the facilities of their school.'

According to **John Dave**, 'Team teaching is an arrangement whereby two or more teachers with or without one or more class groups in an appropriate instructional space and given length of time so as to take advantage of the special competencies of the members.'

In the context of above definitions, it can be concluded that in team teaching, the participants determine their own activities themselves. In spite of this, they collect the resources, interests & competencies. In this way, team-teaching is a well defined system in which many teachers provide instructions collectively to the group of students. Generally, in this two or more than two teachers take part. They execute the teaching plan for the group of students. In team teaching, the plan of teaching method, time and process is kept flexible so that the necessary changes can be made in the programme of team teaching according to the ability of the teachers and objectives of the teaching. In short, team teaching can be defined as a type of instructional organization involving teaching personnel and the students assigned to them, in which two or more teachers are given responsibility working together, for all or significant part of the instruction of the same group of students.

Characteristics of Team Teaching

1. Team Teaching is considered as a teaching method.
2. In this type of teaching, two or more than two teachers take part in the task of teaching.
3. Team teaching is based on cooperation. In team teaching, all the participants teachers try to collect their resources, abilities and experiences.
4. In Team Teaching, the involved teachers prepare a plan collectively and also execute it collectively. In spite of this they evaluate also collectively.
5. In the process of teaching the needs and available resources of the students & teachers are also kept in mind.
6. During team-teaching, the different aspects of a single topic is taught by two teachers one by one in a sequence.
7. The main objective of team-teaching is to make the teaching-learning effective.
8. Isolation of teachers from fellow teachers gets eliminated.
9. The responsibility of the teacher in team-teaching lies on the entire team, not on a single teacher. This method is based on collective responsibility.
10. In team teaching, teacher determines its own activities himself.
11. Team teaching is a technique to create conditions for instruction.
12. The planning of team teaching is flexible.

Objectives of Team Teaching

1. To use most appropriately the attractive activities, competencies and interests of the teacher community.
2. To make the class-room teaching effective according to the interests and capacities of the students.
3. To increase the flexibility in the grouping of the students. Grouping is done according to this flexibility.
4. To increase the quality of instruction.

Types of Team Teaching

The classification of team-teaching is done on the basis of forms of administration which is as follows :

1. Team of teachers of the same department : This type of team of teachers includes the teachers of the same department. Such type of classification is done for secondary and senior secondary classes. It is possible only when the teachers are more than one.

2. Team of teachers of various departments of the same institution : In this type of team of teachers, a team of teachers of different subjects is made and that team is used in training institutions, such as psychology, philosophy, sociology etc. A team of teachers from these subjects can teach with much convenience. For example, B.Ed. training, M.Ed. etc. In nut shell, interdisciplinary teaching is encouraged by such type of team teaching.

3. Team of teachers of the same department from different institutions : In this type of team-teaching, experts from other institutions are also invited to join the team. This type of team-teaching can be arranged at every level. A provision of such team-teaching for each topic can be made very conveniently. Use of such team-teaching is very beneficial. Such team-teaching can be encouraged which promotes cooperative teaching where there is a single teacher of the subject. Utility of such team teaching increases and becomes impressive when there are more than one training institutes in a single city.

4. Procedure of Team Teaching : Efforts are made to achieve various objectives in the teaching-learning process provisions are made for team teaching according to these objectives.

For team-teaching, a sequential procedure is followed. This process of team-teaching involves the following steps :

1. Planning : In this step, plan for team teaching is prepared. To plan for team-teaching, the following activities are to be performed :

- (i) To determine the objectives of team teaching.
- (ii) To write the objectives of team-teaching in behavioural terms.
- (iii) To make a decision about the topic for teaching.
- (iv) To prepare an outline of the topic for teaching.
- (v) To assign the tasks to the teachers according to their interests and their skills.
- (vi) To determine the evaluation techniques.
- (vii) To create teaching material and learning environment.

Keeping in mind the above mentioned activities, a comprehensive plan to team-teaching is prepared.

2. Organisation : To organize team teaching, the objectives of organization are kept in mind and problem of the students are also attended, the following

activities are performed for the organization of team-teaching.

- (i) In order to determine the level of instructive, the teacher asks some preliminary questions. Only then, he decides about the level of the instruction.
- (ii) Communication technique is selected only after paying attention towards the pupils' knowledge of language.
- (iii) The teacher delivers the lead lecture and the fellow teachers of the team listen to him and go on noting the points. They note those points in particular which the students must understand and which are difficult for them.
- (iv) After this, the other members of the team also deliver the lecture and clarify the different elements or components.
- (v) The activities of the students are reinforced. In this, the teachers go on motivating the students.
- (vi) During these lectures, some tasks are assigned to the students for compliance in the class room. It is the significant task of team teaching.

3. Evaluation of the Results : This step is considered very significant in the entire team-teaching process. In this step, evaluation is done in the context of acquisition of objectives on the basis of the performance of the students, i.e. it is seen whether the objectives have been achieved or not. The following activities are performed in this step -

- (i) Decisions are taken regarding the objectives and performances of the students.
- (ii) Necessary modifications are done on the basis of evaluation in the planning and organization step.
- (iii) Oral-written questions and experimental methods are followed for evaluation. Every question evaluates an objective.
- (iv) The drawbacks and difficulties of the students are diagnosed & proper remedies are provided.

Hence, the results of evaluation step act as reinforcement in the pupils and teachers. Various institutions adopt the process of team teaching according to their objectives and means.

☐ **What are the advantages and limitations of team-teaching?**

Ans.

Advantages of Team-Teaching

Following are the advantages of team-teaching :

- (i) **Quality of instruction :** The most important utility of team teaching is that it can be used to improve the quality of the instruction.
- (ii) **Economical :** Team teaching is economical also. This type of teaching saves the time and energy. Also it helps in establishing discipline in the class.
- (iii) **Exposure of groups to more specialists :** It is also great contribution of the team teaching method that the students get the opportunity of exposure to more specialists. Hence they get the benefit of expert knowledge of the specialist teachers.
- (iv) **Development of the Professional Status of the teacher :** Team teaching helps in developing the professional status of the teacher because this

provides the opportunity to the teachers to read the new literature. In team-teaching, the teacher himself works very hard.

- (v) **Development of Human Relation** : The development of human relations is very essential for social adjustment. The traditional teaching lacks the development of human relations. Team teaching provides opportunity to the development of human relations.
- (vi) **Opportunity for free discussion** : Through team-teaching, the members and the students get multiple chances to participate in discussions. Stimulus can be provided to the ideas of teachers and students in the team teaching. In team-teaching strong will power to participate and responsibility develops in the teachers and the students.
- (vii) **Flexibility** : In team-teaching, the school building, school staff and other resources of the school can be used in a very flexible manner. Team-teaching helps in getting rid of traditional time table.
- (viii) **Evaluation** : The benefit of teaching can be availed in the evaluation step very well. In this, all the teachers get the opportunity to evaluate to tasks of the other fellow teachers. Very essential suggestions can be given so that the necessary modifications can be made. In traditional teaching, no teacher pays any attention to other teachers' tasks of teaching. Team teaching can get all the teachers assembled and they can be provided with feedback about their teaching.

Limitations of Team Teaching

The following are the limitations of team-teaching :

1. **Costly Method** : In comparison to traditional methods, team teaching is very costly in terms of per student expenditure.
2. **Lack of Accommodation** : In comparison to tradition teaching, more rooms & furniture are required in team teaching. The rooms should be spacious also in addition to the number. But in tradition schools, neither the number of rooms is sufficient nor their size is satisfactory. Hence, due to lack of sufficient space and accommodation, the effectiveness of team teaching looks doubtful.
3. **Lack of Cooperation** : The basis of team-teaching is the cooperation. But sometimes some teachers hesitate in cooperating the other teachers. Hence, cooperation from all the teachers cannot be expected in team-teaching.
4. **Delegation of power & responsibilities** : Team teaching requires delegation of power and responsibilities which is lacking in the present-day school system. It is because no administrator would like to delegate his powers to the others.
5. **Disregard to the dynamics of small group** : In team-teaching, specific type of guidance cannot be provided, because, during teaching school staff cannot function like a football team.
6. **Lack of Research Work** : Being team teaching a new concept, sufficient research work is yet to be taken up. Efforts are being made to use this method by applying trial & errors.
7. **Variations in the Roles of Teacher** : In team teaching, there are variations in the roles of teachers. This increases the burden of teachers during team-teaching. A teacher considers these roles opposing to each other. This

situation makes difficult for the teachers to maintain coordination and balance.

8. **Diversification in the views of teachers** : In team teaching, it is very difficult to bring unity in the ideas of different teachers working in team teaching, such as, some teachers want to make the curriculum very comprehensive & broader, while some want to delimit the same. It becomes very difficult to deal with such conflicting situation.
9. **Conflict between change & traditionalism** : There is always a possibility of conflict between new methods and traditionalism. New methods generally create dissatisfaction among the traditional teachers. Such teachers try to resist these changes.
10. **Lack of Flexibility in Team Teaching** : For the success of team teaching, flexibility in the structure is essential, such as selection of the teachers and students, deciding the teaching duration etc. If such a flexibility is not possible, then the success and effectiveness of team-teaching would be negligible.



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Unit-III

3.1 LEARNING : CONCEPT, IMPORTANCE, TYPES AND FACTORS AFFECTING LEARNING

- ❑ What do you mean by Learning? Explain its nature. Describe the nature of learning.
- or
- ❑ Define Learning. What are the characteristics of Learning?
- or
- ❑ What is Learning? Explain the characteristics of Learning.
- or
- ❑ What do you understand by Learning? Describe in detail the characteristics of Learning with the help of suitable examples.

Ans. Human being goes on learning from birth till death. Learning affects child's development too much. A child learns new habits only through the process of learning and imitates traditions, customs and stereotypes. Intellectual skill also develops through learning. Also, the decision of right & wrong, the concepts of justice and aesthetic sense etc. develop through learning. This process of learning continues throughout life. Human development takes place through learning. Its basis is maturation.

Psychologists agree that every person is born with some basic tendencies and the satisfaction of these basic instincts depends upon learning. As a result of this learning process, the development of this world could have been possible. Hence this process of learning is a very comprehensive process. Before studying the various aspects of this process it is essential to know what the learning is? What are its characteristics? What are the theories of learning? etc.

Meaning and Definitions of Learning

Various psychologists have explained learning from different point of views.

According to behaviourists, "Learning is the modification of behaviour as a result of experience. The child brings changes in his behaviour after gaining experiences from the environment."

According to Gestalt View, "The basis of learning is to gain knowledge after observing the whole structure. Responding towards the entire situation is learning."

Similarly, the formic view emphasizes upon the goal-centred structure, i.e. learning occurs keeping in view the goal.

Kurt Lewin has presented the field view of learning and explained the learning as the direct cognitive organisation of a situation. Motivation has a significant role & place in learning.

According to **Woodworth**, "The process of acquiring new knowledge and new responses is the process of learning."

According to **Crow & Crow**, "Learning is the acquisition of habits, knowledge & skills."

According to **J.P. Guilford**, "Learning is any change in behaviour resulting from behaviour."

According to **Cronbach**, "Learning is shown by a change in behaviour as a result of experience."

Pavlov has said, "Learning is habit formation resulting from conditioning."

According to **Gates**, "Learning is modification of behaviour through experience."

According to **Kingsley and Garry**, "Learning is a process by which behaviour is originated or change through practice or training."

According to **Colvin**, "Learning is the modification of our ready made behaviour due to experience."

According to **G.D. Boaz**, "Learning is the process by which the individual acquires various habits, knowledge and attitudes that are necessary to meet the demand of life in general."

Pressy has said, "Learning represents experience that leads to a change or adjustment in performance and to the acquisition of new ways of behaving."

In the words of **C.E. Skinner**, "Learning is the process of progressive behaviour adoption."

As a result of studying and analysis of above mentioned definitions of learning, the following facts come to the light :

1. Learning is modification in behaviour.
2. Learning is the organisation of behaviour.
3. Learning is the confirmation of new process.

But, in fact, out of behaviour modification, organisation of behaviour and confirmation of new process, none is completely responsible for learning.

The meaning of learning has also been explained according to the period, such as-

1. According to an old view, learning is a broader term. All the activities which affect the children are included in it. Along with the growing process, mental development of the child goes on occurring. Consequently, changes take place in his behaviour continuously. The child goes on learning through Experiences.

2. From psychological point of view, learning has been explained as stimulus-response process. According to the point of view, the establishment of stimulus-response relationship is known as learning.

Some other facts also come before us relating to the learning, such as-

- (i) Learning is a process through which the behaviour of the child changes or modifies.
- (ii) Learning is predicted on the basis of changes in the behaviour.
- (iii) These changes can be negative or positive.
- (iv) The changes due to learning are permanent.
- (v) Changes in the behaviour are the results of experiences.
- (vi) Learning can be termed as a mental process.

Characteristics of Learning

The process of learning has its own characteristics which are described as below :

1. **Learning is a Continuous Process** : The process of learning starts from mother's womb. After birth, the child acquires skill from experiences obtained from environment. Hence, learning goes on throughout life formally or informally and directly or indirectly. Learning is considered as a process, not as a product. During this process, knowledge, skills, habits, attitudes and aptitudes get developed during this process. Learning results into the storage of knowledge and this storage continues throughout life.
2. **Learning is Change in Behaviour** : The result of Learning process is obtained in terms of behavioural changes. What ever the type of learning is, the result would be the same i.e. change in behaviour. This change can be in any form. But in the process of learning, focus should be on the changes in desirable direction and desirable form, i.e. these changes should occur in positive direction.
3. **Learning is a Universal Process** : Learning is considered as a universal process. Because learning is not the right of any one nation, caste or religion. It is meant for all, for every place, for every caste and for every religion. Every person has full capacity to learn. Opportunities are needed. Whatever the differences in learning are visible, must be due to the differences in opportunities.
4. **Learning is Adjustment** : Learning has special contribution to adjustment. At the time of birth, the child is cent-percent dependent upon others. But gradually with time, he has to mould his internal responses according to the changing conditions. First of all, he establishes adjustment to his environment, but the basis of this adjustment is his learning.
5. **Learning is Purposive and Goal-oriented** : Learning is always purposive and goal-oriented. If we don't have any objective and goal, then the process of learning will not show any effect. Through the process of learning, we can move towards pre-determined goal. As we learn, we move towards our goal.
6. **Learning is a process of Development** : Learning can occur in any direction—desirable or undesirable. But we are concerned with the individual's development in desirable direction. If a child learns stealing or pick-pocketing, it is learning undoubtedly, but it is undesirable. Society would not opt for this type of learning. Hence, learning is always viewed as development.
7. **Learning is New Organisation of Experiences** : The basis of learning is the acquisition of new experiences. Their behaviours change as a result of new experiences. New experiences are acquired on the basis of old or past experiences and hence, a new system evolves.
8. **Learning is the Product of Activity and Environment** : To interact with environment is very essential for the learning process. In the absence of such interaction, no result of learning process can be possible. If the interaction of the children with the environment is excessive, their learning would also be more in quantity. Hence, there cannot be any result of learning in the absence of activity and interaction. This interaction provides experience to the children and consequently, changes occur in the behaviour of the children.
9. **Learning Helps in Achieving Teaching-learning Objectives** : There are different objectives in teaching-learning situations. In order to achieve them, help is to be sought from learning process. To make learning process effective, knowledge, insight, interests, skills and attitudes should be developed. Only after acquiring them, changes in behaviour of the individual can be expected. Hence, for achieving

teaching-learning objectives, the learning process plays the major role.

10. **Learning is Transferable** : The learning acquired in one situation is capable of transfer to some other situation. The knowledge acquired in one situation proves helpful in acquiring the knowledge in other situation. This is known as transfer of learning. Sometimes the previously acquired knowledge creates obstacles in the way of acquiring new knowledge.

11. **Learning is Related to Individual and Social Needs** : Man is a social animal and is an integral part of the society. He meets out his needs while living in the society. Every person has different needs which can be physical, mental, emotional, social or religious. But all needs of all persons are never fulfilled. In such a situation, he tries to control his own needs. This process of controlling is said to be 'Adapting to the conditions'. Hence, the learning process creates balance between the person and needs. In the absence of social environment, an individual's learning process does not remain effective.

12. **Learning Helps all Round Development of Personality** : Every person wants a balanced and all-round development of the personality. In balanced and all-round development, learning plays a significant role and contributes significantly.

13. **Learning is Research** : Researching is also a sort of learning. During research, a person makes efforts differently and after doing many activities, reaches at some result or conclusion. From this point of view, research is also learning.

14. **Learning is Determined by Conscious As Well As Unconscious Experience** : Learning is determined by conscious and unconscious experiences. It is acquired by the learner deliberately or unknowingly.

15. **All Modes of Behaviour are Affected by Learning** : Learning affects all the aspects of behaviour, which includes skills, knowledge, attitudes, personality, motivation, fear etc.

16. **Learning is the Fundamental Process of Life** : Learning has been considered the fundamental process of life. Without this neither the entity of life is possible, nor any type of progress is possible. It functions as the basis for the progress of the civilization.

17. **Learning is Total Reaction of the Individual to Total Situation** : Learning is the total reaction of the individual total situation, i.e., how he reacts towards some situation, it would be known as his learning.

18. **Learning is Creative and Active** : The process of learning is always active, i.e. the learner himself participates in learning process. Only then he would be able to learn something. Hence, learning is active. Similarly, learning is considered to be as creative.

19. **Learning is Intellectual** : Learning cannot be considered as a mechanical process. It is an intellectual task. Nothing can be learnt in the absence of some thinking. Also, success is not possible in any task without any thinking. Hence, the task can be learnt very rapidly in which intelligence is used.

20. **Learning is the Relationship between Stimulus and Response** : Learning is generally, a relationship between stimulus and response. A person is considered as a learnt-person if he reacts according to the task to be learnt. Through learning, a person learns reactions according to the stimuli associated with the environment and other aspect of life.

□ Describe the various types of Learning. Also throw light on the process of Learning.

Types of Learning

Learning can be divided into the following three categories from psychological and educational point view :

1. According to the Type of Learners.
2. According to the Involvement of Bodily Organs.
3. According to the various Aspects of Human Behaviour.

1. According to the Type of Learners.

Learning is of two types according to the type of learners :

(a) **Animal Learning** : Changes in the behaviour of animals is known as Animal learning.

(b) **Human Learning** : The changes which occur in the human behaviour is known as human learning or learning by human. Human learning is categorized according to the developmental stages, such as infant learning, childhood learning adolescence learning.

2. **According to the Involvement of Bodily Organs** : This type of learning can be divided into the following sub-categories :

(a) **Motor Learning** : This type of learning includes muscular activities. Motor learning is also of two main types :

(i) **Sensory Motor Learning** : In this learning, simple habits are acquired through sense organs, e.g. learning skills in the playground of nursery schools.

(ii) **Perceptual Motor Learning** : In this learning, habit and complex skills are acquired, e.g., dancing, cycling, writing with hands, swimming, playing some musical instrument etc.

(b) **Ideational Learning** : Under this learning, ideas, concepts and mental associations are acquired. This is generally the learning of subjective nature and it does not require the muscular activities. Ideational learning is also of the following types :

(i) **Perceptual Learning** : It occurs mainly as a result of sense organs, solid objects, spoken words or written symbols or by drawing a figure or studying the nature or reading etc.

(ii) **Conceptual Learning** : It is also known as abstract learning. In this, concept and abstract ideas are learnt.

(iii) **Associative Learning** : It is that learning which occurs suddenly or by chance or due to relationship or through experimentation. It includes the associating informations in some determined order. Remembering and establishing relationships among mental processes are also included in it.

(iv) **Imaginative Learning** : A process in which the things of past, present and future gets a definite shape in conscious, is known as imagination, and the process through which these things are learnt and understood, is known as imaginative learning. It includes acquiring images and those things which the sense organs never experience.

3. **According to Various Aspects of Human Behaviour** : Human behaviour has mainly three aspects : (i) Cognitive, (ii) Affective (iii) Conative or Psycho-motor aspects.

(i) **Cognitive Aspect** : This type of learning is concerned with concept and relationship between them. All the school subjects develop this type of learning. In school, while teaching different subjects, the teacher provides the knowledge of

different facts, explains the relationships between different concepts and helps in reaching at some generalization on the basis of his experiences.

(ii) **Attitudinal Learning** : Attitudes and values are learnt by human behaviour. They develop along with the development of relationships with their own group. As a result of this type of learning, sentiments and self-realization etc. are learnt.

(iii) **Learning by Skills** : It includes motor development through practice. In school, this type of learning occurs through various activities such as reading, writing, playing some specific games. The main methods used for developing skills are demonstration method, experimental methods, feedback and practice.

Some Other Types : Besides above, there are other types of learning such as :

(a) **Intellectual Learning** : Along with mental development, reasoning power also develops in the child. The sensitive acquisition of knowledge development is intellectual also.

(b) **Appreciation Learning** : When the child develops understanding for the merits-demerits, good-bad, aesthetics etc. in respect of objects and events, then he acquires the appreciational learning in the study of poetry, history, drama etc.

(c) **Imitative Learning** : Learning can be imitated, e.g. learning of drama, arts, music takes place through imitation.

(d) **Problem Solving Learning** : As a result of this type of learning, the ability of problem solving and capacity to select correct response develop.

(e) **Emotional Learning** : At the time of birth, the child cannot express his emotions of fear, love, jealousy clearly. But, gradually with the passage of time he develops the ability to express the emotions.

(f) **Social Learning** : A person learns social working in special conditions which is known as social learning.

(g) **Academic Learning** : This type of learning includes that knowledge which a child acquires through books & formal education.

(h) **Integrated Learning** : In this type of learning, all the above mentioned types of learning take place simultaneously.

3.2 CONCEPT OF E-LEARNING

□ Explain the concept of E-learning. Describe the characteristics of E-learning. What are the core-elements of E-learning? [MDU, 2018]

Or

□ Discuss in detail the various modes and styles of e-learning. [CRSU, 2018]

Ans. Concept of E-learning : E-learning means electronic learning. This word is used for pupil-teacher interaction on on-line. In thus, there is no face to face interaction between individuals E-learning is used in the different contexts, such as—

- (i) To provide training to the employees in companies.
- (ii) For distance education.
- (iii) On-line training of cost-effect in the field of business.
- (iv) It is also related to educational website.
- (v) For using the computer education.

E-learning can be formal or informal. Internet is used in E-learning. LAN and WAN networks are used in it. Some people use term 'Online Learning' for E-learning. According to Rosenberg (2001), E-learning means application of internet

technique in such areas in which new fields in knowledge and working capacity get opened.

Characteristics of E-learning

Following are the characteristics of E-learning :

1. **To make learning programme effective** : With the help of E-learning technique, learning process can be made effective.
2. **Flexible and Knowledge Packed Teaching Methods** : The teaching-methods of E-learning are full of knowledge which benefit the learners.
3. **Quick Evaluation** : Through E-learning, immediate evaluation of learning process can be done.
4. **Knowledge Management** : The knowledge management can be possible through E-learning. Through this system, we can measure the acquired progress in achieving the determined learning objectives.
5. **Learning with Convenience** : With this method, we can learn with our own convenience.
6. **Not a Subsystem of any technology** : E-learning is not a sub-system of any technology.
7. **More Comprehensive Concept** : In E-learning Concept, computer and Web Technologies are used.

Core Elements of E-learning

The core elements of E-learning are as follows :

1. **Pedagogy** : Education or Science is known as pedagogy. It is the organized application based on the knowledge of science. It means class-room methods and educational techniques. Pedagogy occupies significant place in E-learning. It tries to define the structures of some educational material or components, such as some lesson, multi choice questions, any chapter etc. All these components are independent. It is very essential to evaluate the methods of preparing the subject matter in the very beginning. During the teaching period, the difficulty level have to be considered. It should neither be high nor be low. The following approaches are used in formulating the teaching material in E-learning.

- (a) **Cognitive and Emotional Perspective** : It is very essential to pay attention towards the cognitive and emotional aspect of the student and the construction of subject matter. It enables us to know how the human brain works in learning process. Similarly the emotional aspect is also significant, such as interests, motives and entertainment etc.
- (b) **Behavioural & Contextual Perspective** : The main objective of teaching is to change or modify the pupil behaviour. Attention should be paid towards behavioural and contextual aspects of the student, such as skills, knowledge of behaviour, conversation with other persons, group-research and helping the study etc.
- (c) **Social Constructionist Approach** : Social structures should also be looked into the teaching-art. Children have the capacity to construct the concepts and efforts can be made to construct the concept in groups.
- (d) **Instructional Design** : After determining the curriculum, its instructions are prepared. During this, help can be sought from the teacher or from the group of teachers. While preparing the outline of the curriculum for E-learning, the level of the students must be considered.

2. **Standardization** : Such humans must be pre-decided to whom the instructional material suits very well.

3. **Re-usability** : In E-learning, the nature of material should be that of re-use. In E-learning the educational material is divided into smaller parts which the students can use & re-use. All these parts should be arranged in a sequence.

□ Describe the various approaches to E-learning. Throw light on various styles, utility and limitations of E-learning.

Ans.

Various Approaches to E-learning

The new approaches evolved in the tasks which experienced the involvement of computer. The education field also has experienced various approaches as a result of computer's entry in that field. The following is the description of various approaches to E-learning :

1. **Computer Based Learning or CBL** : Computer service is being considered as the essential service in the current educational environment. This system means that academic environment in which computers are used for various teaching tasks but his system involves very restricted use of computer experiences such as games, internet etc. In this system, the students can get training according to their own subjects. In these programmes - software, hardware etc. are used.

2. **Computer Assisted Learning or CAL** : It includes various educational computer applications such as drill, practice, tutoring, simulating and problem solving etc. The application of CAL started in 1959. Researches have revealed that in comparison to traditional instruction, CAL is more effective. In CAL, computer interacts directly with the student. It provides instruction directly. The following types of lessons can be provided with the help of CAL :

- (i) **Drill and Practice** : In CAL, it is the most simple function which is learnt. In it, the questions & problems of the learners are presented and their responses or reactions are received. The reactions or responses of the learners are rectified immediately.
- (ii) **Tutorial Modes** : In it, the information is presented in small units. Computer analyses the student's response and provides necessary feedback. If the computer has many programmes, then these would be more beneficial with regard to individual difference.
- (iii) **Simulated Mode** : In this, the miniature form of real life situations are faced. Hence, in it, we get an opportunity of practicing the real situation without any risk. The different data represent the real situation before the students. On the basis of this data, one is asked to take decision.
- (iv) **Discovery Mode** : In this inductive approach is used but the students try to solve the problem by trial and error method.
- (v) **Gaming Mode** : This type may or may not be instructional. It has mostly entertainment objective. Sometime teaching is done through games.
- (vi) **Problem Solving Mode** : In this approach, the learner prepares the programme himself for problem solving and acquires the academic value. The solution of the problem is the ultimate feedback.

Hence, in CAL, the learning process can be made effective by means of information and communication technology or ICT.

3. **Learning Management System** : In this learning system, various

softwares are prepared which are used in the expansion of education and its management. Importance is given to the management of all the necessary elements, their organization, evaluation and to provide security to the related data. For this purpose, various storage devices are used, such as C.D., floppy, pen drive, DVD etc. The students learn by using them in their own computers.

The learning management refers to provide student sources and evaluating them. Students are prepared for practice. Such type of feedback is useful for isolated students.

4. Computer Aided Assessment (CAA) : Computer Aided Assessment has also been given the name 'E-Evaluation'. When the Computer aided assessment (CAA) has become so much popular, the E-evaluation i.e. Computer Aided Assessment or E-Evaluation is very significant & necessary. In E-evaluation, multiple choice questions are constructed. The student can record his response as soon as he looks the questions on the monitor of the computer and he records his response. Also, we get the results of the evaluation immediately. Also, immediate feedback is received.

Communication Styles of E-Learning

The following are the various styles of E-learning :

1. Synchronous Communication Style : In this style of communication, both the student and the teacher will have to be present on internet at some particular time in order to perform some teaching-learning process for some essential communication. This type of communication provides maximum opportunity of participation provides maximum opportunity of participation to both the teacher as well as the student. During this process, the student can ask the questions to remove his doubts. Similarly, the teacher can also ask the questions from his students in order to check the progress of his students.

2. Asynchronous Communication System : In this style, the information pertaining to curriculum and learning experiences is sent to the learners through E-mail. These informations are always available in the form of C.D., D.V.D., Globes or Web Pages. From this point of view, the student and teacher are not required to be present together at anytime for communication. In this, the study material is available from the very beginning. The learner can study this material at his convenience and according to his speed at any time. He can send the produced task to the teacher by E-mail and teacher too can send his feedback to his students through E-mail at anytime.

Utility of E-Learning

The main utility of E-learning is as follows :

- 1. Flexibility :** E-learning has flexibility which is its characteristic as well as its utility.
- 2. Self-Pacing :** The student can learn at his own pace. For this, E-learning has various facilities, i.e., availability of such opportunities in which the student can repeat the subject matter for a number of times he wishes, he can stick to any part of the curriculum for the duration for which he wants.
- 3. Learning Material of Quality :** Through E-learning the best quality learning material can be made available to the students. Sometimes this material is better than even the traditional material. This better material

is subjected to storage which can benefit many other students.

- 4. Universalization :** E-learning is being considered these days as the best approach, making available the high quality instruction and learning experience to the students in every corner of the world. This approach helps in meeting the scarcity of trained teachers and resources.
- 5. Similar Learning :** Through E-learning, all the students get the opportunity of similar learning and training unrespective of their belongingness to any place, culture, province or country.
- 6. Need Based Learning :** E-learning has sufficient capacity to provide the learning experiences according to the needs, mental level, expertise, local needs and available resources.
- 7. Helpful in Learning by Doing :** E-learning contributes a lot in simulated teaching and learning by doing. In E-learning unless & until a student does not involve himself practically, he cannot learn anything. E-Learning has the capacity to provide alive form to the learning process.
- 8. Study at Convenience :** E-learning is of significant utility in the present busy time schedule for those students who are not capable of availing the benefit of traditional class-room teaching, whatever the reason may be. In the sourcelessness, E-learning proves very helpful.
- 9. Diversity in Opportunities :** During E-learning, the interest and motivation of the students can be well-maintained with the help of this E-learning. E-learning can bring the diversity in opportunities for learning.
- 10. Helpful in Proper Evaluation of Opportunities :** There is proper provision of evaluation of learning in E-learning too. The learner can do this evaluation himself also. Teacher can also do such evaluation. This evaluation can help the teachers to provide remedial and diagnostic teaching to the students.

Limitations of E-learning

As we know that E-learning is yet in its infancy stage, therefore its limitations or demerits are but natural. It has the following limitations :

- 1. Lack Direct Interaction :** E-learning lacks the opportunities of direct interaction which are common in traditional class-room teaching. Students can meet neither to their companions nor to their parents. The learners get isolated. This results into the non-development of social attributes.
- 2. Lack of Modern Facilities :** E-learning can only be useful if the learners are provided with all the facilities such as Laptop, computer, multi-media, internet etc. These facilities should be given at home. But all these facilities are not sufficient.
- 3. Lack of Efficiency :** In E-learning, all the students are expected to have the skills of using internet, computer and web-technology. They can only be benefitted. But this efficiency is lacking.
- 4. Administration's Negligence :** Administration's negligence is also very common. Such arrangements are not possible in schools and at home. Only a very few public schools could provide such E-learning facilities.
- 5. Negative Attitude :** Being a new concept, peoples' attitude is yet to develop in favour of E-learning. Mostly, people have negative attitude for E-learning which proves a barrier in the way of adapting E-learning.
- 6. Lack of Teacher Training :** It will take some time to be familiar with E-

learning as it is a new concept. The desired skills are also lacking. How it can be possible in the absence of desirable skills to make the E-learning popular?

3.3 CONSTRUCTIVISM

- ❑ What do you mean by Constructivism? While explaining its concept, describe the planning and development of learning experiences. [MDU, 2018]
- or
- ❑ Write a note on Constructivism. [CBLU, 2018]
- or
- ❑ Write a short note on the 'Concept of Constructivism'.

Ans. Concept of Constructivism : Constructivism is basically a theory-based on observation and scientific study about how people learn. It says that people construct their own understanding and knowledge of the world, through experiencing things and reflecting on those experiences. When we encounter something new, we have to reconcile it without previous ideas and experience, may be changing what we believe, or may be discarding the new information as irrelevant. In any case, we are active creators of our own knowledge. To do this, we must ask questions, explore and assess what we know.

In the class-room, the constructivist view of learning can point towards a number of different teaching practices. In the most general sense, it usually means encouraging students to use active techniques (experiments, real-world problem solving) to create more knowledge and then to reflect on and talk about what they are doing and how their understanding is changing. The teacher makes sure he understands the student's pre-existing conceptions, and guides the activity to address them and then build on them.

Constructivist teachers encourage students to constantly assess how the activity is helping them gain understanding. By questioning themselves and their strategies, students in the constructivist classroom ideally become 'expert learners' This gives them ever-broadening tools to keep learning. With a well planned class-room environment, the students learn How to Learn.

Assumptions

Constructivist epistemology assumes that learners construct their own knowledge on the basis of their interaction with their interaction. Following epistemological assumptions are at the heart of what we refer to as 'Constructivist Learning.'

1. Knowledge is physically constructed by learners who are involved in active learning.
2. Knowledge is symbolically constructed by learners who are making their own representations of action.
3. Knowledge is socially constructed by learners who convey their meaning making to others.

Constructivist learning implies an initial concern with what knowledge is and how knowledge is actively constructed by the learner. Advocates of constructivism agree that acquiring knowledge or knowing is an active process of constructing understanding rather than the passive receipt of information.

Constructionism and Constructivism are often used interchangeably. It is be-

lieved by constructivists that representations of physical and biological reality, including race, sexuality and gender, as well as tables, chairs and atoms are socially constructed. Constructivism has roots in philosophy education and social constructivism. Constructivism criticizes objectivism, which embraces the belief that a human can come to know external reality (the reality that exists beyond, one's own mind). Constructivism holds the opposite view, that the only reality we can know is that which is represented by human thought (assuming a disbelief or lack of faith in a superhuman God). Reality is independent of human thought or knowledge is always a human construction.

In the context of constructivism, more emphasis has been laid on learning design. In the traditional lesson plan, focus was on the things or activities to be done by the teacher. But in constructivism, if a design of learning experiences is to be prepared, the teacher has to emphasize the tasks or activities to be done by the students. Instead of planning the things to be done by a teacher, those things or activities should be organized which are to be done by the learners.

In the previous years, constructive learning appeared as a main approach in teaching. Behaviourists concentrated on intelligence, domains of objectives, levels of knowledge and reinforcement. But the constructivists assume that the learner constructs his knowledge on the basis of his interaction with the environment. The majority of planning model of the conventional teacher is based on verbal explanations or on some visual demonstration of a procedure or a skill-which the student practises afterwards. In such a study conducted by Goodland (1984) entitled 'A place called a school', it was found that most of the teachers' remain in conversation with the children. The students have reported that they like the subjects like physical education, fine arts, industrial art etc. because they have to do something in them. They were active participants, not passive recipients. It is the primary message of constructivism.

Constructive Learning Design

Conventional learning planning focuses on what the teacher will do. If learning is teacher directed, then the focus of the lesson plan is on what the teacher does. When designing a learning experience for students, teachers focus on what students will do. Our language encourages teachers to focus on thinking about how to organize what learners will do rather than plan their teaching behaviours.

Constructive learning design focuses on the development of situations as a way of thinking about the constructive activities of the learner rather than the demonstrative behaviour of the teacher. Most conventional teacher planning models are based on verbal explanations or visual demonstrations of a procedure or skill by the teacher-which are then combined with practice of this method or skill by the student.

The constructive learning design emphasizes the following six elements :

1. Situation
2. Groupings
3. Bridge
4. Questions
5. Exhibit
6. Reflections.

These elements are designed to provoke teacher planning and reflection about the process of student learning.

1. **Situation** : Teachers develop the situation for students to explain, select a process for groupings of materials & students. What situation are you going to arrange for students to explain? Give this situation a title and describe a process of solving problems, answering questions, creating metaphors, making decisions, drawing conclusions or setting goals. This situation should include what you expect the students to do and how students will make their own meaning.

2. **Groupings** : There are two categories of groupings :

- (a) How are you going to make groupings of students; as a whole class, individuals, in collaborative thinking teams of two, three, four, five, six or more and what process will you use to group them; counting off, choosing a colour or piece of fruit, or similar clothing. This depends upon the situation you design and the materials you have available to you.
- (b) How are you going to arrange groupings of materials that students will use to explain the situation by physical modelling, graphically representing, numerically describing, or individually writing about their collective experience. How many sets of materials you have will often determine the number of student groups you will form.

3. **Bridge** : This is an initial activity intended to determine student's prior knowledge and to build a 'bridge' between what they already know and what they might learn by explaining the situation. This might involve such things as giving them a simple problem to solve, having a whole class discussion, playing a game, or making lists. Sometimes this is best done before students who are in groups and sometimes after they are grouped. You need to think about what is appropriate.

4. **Questions** : Questions could take place during each element of learning design. What guiding questions will you use to introduce the situation, to arrange the groupings, to set up the bridge, to keep active learning going, to prompt exhibits, and to encourage reflections? You also need to anticipate questions from students & frame other questions to encourage them to explain their thinking and to support them in continuing to think for themselves.

5. **Exhibit** : This involves having students make an exhibit for others of whatever record they made to record their thinking as they were explaining the situation. This could include writing a description on cards and giving a verbal presentation, making a graph, chart or other visual representation, acting out or role playing their impressions, constructing a physical representation with models, and making a video tape, photographs, or audio tape for display.

6. **Reflections** : These are the students' reflections of what they thought about while explaining the situation and then saw the exhibits from others. They would include what students remember from their thought process about feelings in their spirit, images in their imagination, and languages in their internal dialogue. What attitudes, skills and concepts will students take out the door? What did students learn today that they won't forget tomorrow? What did they know before; what did they want to know; and what did they learn?

This brief overview above indicates how each of these six elements integrate and work as a whole, but all need further explanation.

Steps to Control the Elements

The following steps are to be followed to control the six elements :

1. **Assessment** : Assessment becomes an integral part of every step in this learning design. Teachers design the situations based on their assessment of stu-

dents' learning approaches, interests & needs. Teachers design a process for groupings based on their assessment of materials of available and desired mixture of students. Teachers design a simple assessment of what students already know as a bridge to what they want students to learn. Teachers design questions to assess students understanding of concepts, skills or attitudes they are trying to learn. Teachers arrange an exhibit for students to record what they thought and submit it to others for assessment. Teachers arrange for reflections about what students have learned and their internal process of representations as a context for self-assessment of individual learning.

2. **Applications** : The planning approach we are proposing is based on actively engaging students in situations that involve collaboratively considering their own explanations for phenomena, resolutions to problems or formulation of questions. Students are asked to actively construct their own knowledge by making meaning out of the situation by themselves with support and guidance from the teacher. Teachers organize the situation & then provide encouragement and questions groups of students who are trying to construct and to display their own explanations.

For example, composition teachers might ask students to construct the simplest sentences and compare structures, literature teachers might ask students to explain the motives of a character, social studies teachers might ask students to assume the roles of two adversaries in a meeting, science teachers might demonstrate a phenomenon and ask students to explain what was observed, math teachers might ask students to find examples of sloping lines in the world around them and then introduce grids to determine equations, language teachers might engage students in conversational immersion without resorting to English translations, art teacher might ask students to transform clay with their hands without looking at it, music teachers might ask students to identify rhythms in a piece of music using their own annotations. The constructivist approach can be adapted to any subject area or curriculum by involving students as active participants in making meaning instead of passive recipients of information given to them by the teacher. This approach can be incorporated into 45 or 50 minutes class periods to teach a particular concept, skill, or attitude.

Concepts, skills and attitudes convey different dimensions of knowledge. Skills and attitudes are something different than knowledge or that knowledge is merely a collection of facts or information.

Constructivist learning implies in initial concern with what knowledge is and how knowledge is actively constructed by the learner. Advocates of constructivism agree that acquiring knowledge or knowing is an active process of constructive understanding rather than the passive receipt of information.

3.4 LEARNING STYLES

□ **What do you mean by learning styles? Describe some important learning styles.**

Ans. Meaning of Learning Styles : Learning Styles are personal ways in which individuals process information in the course of learning new concepts and principles.

All people can be classified according to their 'style' of learning. A common concept of 'style' is that individuals differ in how they learn. The idea of individual-

lized learning styles became popular in the 1970s and has greatly influenced education.

Learning styles can be defined, classified and identified in many different way. Generally they are overall patterns that provide direction to learning and teaching. Learning style can also be described as a set of factors, behaviours and attitudes that facilitate learning for an individual in a given situation.

Styles influence how students learn, how teachers teach and how the two interact. Each person is born with certain tendencies toward particular styles, but these biological or inherited characteristics are influenced by culture, personal experiences, maturity level and development.

Each learner has distinct and consistent preferred ways of perception, organization and retention. These learning styles are characteristic cognitive, affective and physiological behaviours that serve as pretty good indicators of how learners perceive, interact with and respond to the learning environment.

Students learn differently from each other & it has been determined that the brain structure influences language structure acquisition. It has also been shown that different hemispheres of the brain contain different perception avenues.

A child's brain is continuously developing. The strengths & weakness a child shows when he is five may be quite different than his strengths & weaknesses when he is 10 or 15. The way children learn also changes over time. As a child grows & matures his or her brain grows, develops & matures. A learning style is a student's consistent way of responding to and using stimuli in the context of learning.

Keefe (1979) defines learning style as the 'composite of characteristic cognitive, affective and psychomotor factors that serve as relatively stable indicators of how a learner perceives, interacts with and responds to the learning environment.'

Stewart and Felicetti (1992) define learning styles as those 'educational conditions under which a student is most likely to learn.' Thus, learning styles are not really concerned with what learners learn, but rather how they prefer to learn.

According to Wikipedia, 'Learning styles are different ways that a person can learn. It is commonly believed that most people favour some particular method of interactive with, taking in, and processing stimuli or information.'

Components of learning style are the cognitive, affective and physiological elements, all of which may be strongly influenced by a person's cultural background.

A learning style is a preferential mode, through which a subject likes to master learning, solve problems, think or simply react in a pedagogical situation.

A learning style can also be defined as 'A consistent pattern of behaviour and performance by which an individual approaches educational experiences; learning style is derived from cultural socialization and individual personality as well as from the broader influence of human development'.

Learning styles can be defined as a set of cognitive, emotional characteristics and physiological factors that serve as relatively stable indicators of how a learner perceives, interacts with and responds to the learning environment.

Types of Learning Style

Different people learn differently and psychologists have attempted through the years to spell out the traits of different types of learners and categorize them into different learning styles.

Naturally, there are many models of different learning styles in education. The most widely used is the VAK learning styles model developed in 1987 by Neil

Fleming, a high school and university teacher from New Zealand. Its letters stand for the three learning styles : Visual, Auditory and Kinesthetic. Fleming later added a fourth, read/write, changing from VAK to VARK.

As a teacher, your best option is to use a variety of teaching techniques to give all students the best chance to succeed.

1. Visual Learning Style : People with a visual learning style absorb information by seeing it in front of them & storing the images in their brains. They often enjoy reading, have good handwriting, are very detail-oriented, or organized and have a keen awareness of colour & shapes.

They tend to struggle with verbal directions and are easily distracted by noise. They remember people's faces better than their names, and they often need to maintain eye contact with a person to concentrate on a conversation.

Tips for helping visual learners in class room :

1. Write out directions.
2. Use visuals when teaching lessons, such as pictures, charts, diagrams, maps & outlines.
3. Physically demonstrate tasks.
4. Use visual aids such as flashcards & blocks.
5. Show the visual patterns in language to teach spelling, vocabulary, grammar & punctuation.
6. Organize information using colour codes.
7. Talk with the child face to face and make eye contact whenever possible.
8. When directions are given verbally, encourage the child to ask for clarification when he/she does not understand fully.
9. Encourage the child to write plenty of notes & organize information on paper & with objects.
10. Provide a quite, neat place to study, and minimize distraction as much as possible.

2. Auditory Learning Style : Verbal language is the prime form for exchanging information for these within the auditory learning style. They learn best by hearing & speaking. They often talk more than the average person, are very social, enjoy hearing stories & jokes, understand concepts by talking about them, and may excel in music or the performing arts.

Some auditory learners read slowly & have trouble writing, struggle to follow written directions & have a tough time staying quiet for long stretches of time . They remember names & recognize tone of voice well, while not always remembering people's faces. They often hum or sing and they may whisper to themselves while reading.

Tips or Techniques to teach auditory learners :

- (i) Play word games and use rhymes to practice language.
- (ii) Have the child read aloud, even when alone and follow the text with her finger.
- (iii) Allow the child to explain concepts verbally and give oral reports.
- (iv) Have the child memorize information by repeating it loud.
- (v) Assign projects and study times to be done in small & large groups.
- (vi) Read aloud often to young children.
- (vii) Provide a personal voice recorder the child can use to record notes or questions.
- (viii) Use beats, rhythms, and songs to reinforce educational information.

3. Kinesthetic Learning Style : People with the Kinesthetic learning style learn best by doing; moving around and handling physical objects. They like to explore the outdoors, are often very coordinated, may excel in athletics and performing arts, and usually express their feelings physically, such as with hugging & hitting. They prefer trying new skills for themselves rather than being given directions or shown a demonstration.

They may find hard to sit still for long periods of time & struggle with reading and spelling. They are often considered 'difficult and misdiagnosed with ADHD (Attention Deficit Hyper activity Disorder)'. They learn differently and educators should consider more Kinesthetic learning activities.

Teaching tips to Kinesthetic Learners :

- (i) Give breaks frequently.
- (ii) Let the child try something first before you give detailed instructions.
- (iii) Provide plenty of hands-on learning tools, such as blocks, puzzles, maps, crayons, modelling clay, science experiments, an abacus and a geoboard (a square board with pegs used to teach shapes and geometric shapes.)
- (iv) Don't limit the study space to the usual desk. Allow the child to study while moving around, lying on the floor.
- (v) Use the outdoors for learning opportunities.
- (vi) Teach educational concepts through games and projects.
- (vii) Assign presentations in which children demonstrate concepts or skills.
- (viii) Encourage physical movements while studying, e.g. quiz the child while taking a walk around the block.
- (ix) Find a school with mandatory physical education.

4. Read/Write Learning Style : The read/write style was added to Fleming's model after the initial three. Read/Write learners specifically learn best through the written word. They absorb information by reading books and handouts, taking lots of notes and making lists. They prefer lectures, diagrams, pictures, charts and scientific concepts to be explained using written language. They are often fast readers and skilful writers. Similar to visual learners, read/write learners may struggle with verbal directions and are easily distracted by noise.

Tips to help read/write learners :

- (i) Encourage the child to write plenty of notes rewrite them in his/her own words, and study from them.
- (ii) Provide through, well-organized written material, and write key points in full sentences on the board during lectures.
- (iii) Assign plenty of writing exercises.
- (iv) Explain diagrams, graphs, or any mathematical data using language.
- (v) Setup a quiet study area with as few distraction as possible.
- (vi) Provide a dictionary and other resources material.
- (vii) Allow the child to answer multiple choice questions.

Other Types of Learning Styles

Seven Learning Styles : Learning is a complicated concept as everyone is unique in their own way, and learns in their own way as well. It is still very much possible to classify the learning style into one of the seven categories. These seven categories of learning styles according to Katie Lepi, are :

1. Visual : These people prefer to use pictures, images, diagrams, colours and mind maps.

- 2. Physical :** These are the 'learn by doing' people that use their body to assist in their learning, drawing diagrams, using physical objects or role playing are all strategies of the physical learning.
- 3. Aural :** People who prefer using sound, rhythms, music, recordings & so on.
- 4. Verbal :** The verbal learner is some one who prefers using words, both in speech and in writing to assist in their learning. They make the most of word based techniques, scripting and reading content aloud.
- 5. Logical :** The people who prefer using logic, reasoning and 'systems' to explain or understand the reasons behind the learning & have a good ability to understand the bigger picture.
- 6. Social :** These people are the ones who enjoy learning in groups or with other people, and aim to work with the others as much as possible.
- 7. Solitary :** The solitary learner prefers to learn alone and through self-study.

In reality, we all probably fall into each category, depending on the learning that is taking place.

Four Modalities of Learning Styles : There are other four learning modalities which are as follows :

- 1. Visual Preference :** Students who have a visual strength or preference :
 - (i) Want the teacher to provide demonstrations.
 - (ii) Find it easy to learn through descriptions.
 - (iii) Often use lists to keep up & organize thoughts.
 - (iv) Often recognize words by sight.
 - (v) Often remember faces but forget names.
 - (vi) Often have well developed imaginations.
 - (vii) Are easily distracted by movement or action in the classroom.
 - (viii) Tend to be unaware of noise.
 - (ix) Roughly 60% of students are visual learners.

2. Auditory Preference : Students who have an auditory strength or preference :

- (i) Want the teacher to provide verbal instructions.
- (ii) Find it easy to learn by listening.
- (iii) Enjoy dialogues, discussions and plays.
- (iv) Often do well working out solutions or problems by talking them out.
- (v) Are easily distracted by noise and often need to work where it is relatively quiet.
- (vi) Often do best using recorded books.

3. Tactile Preference : Students who have a tactile strength or preference :

- (i) Do best when they take note either during a lecture or when reading something new or difficult.
- (ii) Often like to draw or doodle to remember.
- (iii) Do well with hands on activities such as projects, demonstrations or labs.

4. Kinesthetic Preference : Students who have a Kinesthetic strength or preference :

- (i) Do best when they are involved or active.
- (ii) Often have high energy levels.
- (iii) Think & learn best while moving.
- (iv) Often lose much of what is said during lecture.

- (v) Have problems concentrating when asked to sit and read.
- (vi) Prefer to do rather than watch or listen.
- (vii) Most children are kinesthetic and become more tactile in the first grade.

How can you determine a child's learning style?

The best way to learn about our child's learning style is to observe what he or she is doing? Actions, interests and preferences will provide information about how he or she is processing information.

If the child has developmental delays, you may find that you often focus on what the child is not doing. Instead, try to focus on his strengths and favourite activities. All children, even the most challenged, have interests and preferences. Identifying these helps increase a child's motivation for learning.

Speak with family members & the child's team to develop an inventory of toys, objects and activities that are meaningful for that child. Ask yourself such questions :

- (i) What types of toys does the child prefer? Does he prefer quiet activities or lots of movement?
- (ii) Does he like to read books and draw pictures? Does he prefer to be shown how to do something rather than being told verbally?
- (iii) Is he active? Does he like to move and participate in more active activities?
- (iv) Is he drawn to numbers and patterns?

How can you support the child's learning style?

Parents & teachers have a tremendous influence on children. Understanding how a child learns can improve how we teach them. Early childhood programs are often organized in a way that supports the range of children's strength & needs. This includes having :

- (i) Adequate periods for movement.
- (ii) Group circle and music time.
- (iii) Learning centres in the class room, e.g., reading corner, block area, outdoor play and art.

This supports participation of children with a wide range of learning styles, while also exposing children to experiences they may not typically seek out.

As adults, we can help children better understand their strengths and individual differences, while supporting challenges. You can seek out real-world experiences that extends the child's learning. For example, if the child is interested in fish and aquatic life, visit an aquarium. The child will retain more information & develop a broader understanding of the world if information is meaningful & presented in a way that meets his or her individual learning style.

Honey & Mumford's Learning Styles

Learning styles were developed by Peter Honey and Alan Mumford, based upon the work of Kolb and they identified four distinct learning styles or preferences :

- | | |
|----------------|---------------|
| 1. Activist, | 2. Theorist, |
| 3. Pragmatist, | 4. Reflector. |

These are the learning approaches that individuals naturally prefer and they recommend that in order to maximize one's own personal learning each learner ought to : (i) Understand their learning style, (ii) Seek out opportunities to learn using that style.

Characteristics of these learning styles

1. **Activist** : Activists are those people who learn by doing. Activists need to get their hands dirty, to dive in with both feet first. Have an open-minded approach to learning, involving themselves fully and without bias in new experiences.

2. **Theorist** : These learners like to understand the theory behind the actions. They need models, concepts and facts in order to engage in the learning process. Prefer to analyze and synthesize, drawing new information into a systematic and logical theory.

3. **Pragmatist** : These people need to be able to see how to put the learning into practice in the real world. Abstract concepts and games are of limited use unless they can see a way to put the ideas into action in their lives. Experimenters, trying out new ideas, theories and techniques to see if they work.

4. **Reflector** : The people learn by observing and thinking about what happened .They prefer to watch from the sidelines. Prefer to stand back and view experiences from a number of different perspectives, collecting data and taking the time to work towards an appropriate conclusions. They are thoughtful people who like to consider all possible angles and implications before making a move. They prefer to take a back seat in meetings & discussions. They enjoy observing other people in action. They listen to others.

In addition to visual, auditory, tactile, and Kinesthetic types of learning styles, there are two more types of learning styles i.e. Analytic Learners and Global Learners.

(a) **Analytic Learners** : Analytic learners focus on the details of language, such as grammar rules and enjoy taking apart words and sentences. They respond well to :

- (i) Well structured & clear lessons,
- (ii) Information & instructions given in steps,
- (iii) Clearly stated goals and objectives of tasks,
- (iv) Activities which require thought such as puzzles, missing letters, matching exercises etc.

(b) **Global Learners** : Global Learners focus on the whole picture & do not care so much about specific details. They do not want to get bored with slow moving lessons and enjoy interesting & attractive materials. Global Learners respond well to : (i) games, (ii) group activities, (iii) story writing, (iv) lots of action based activities, (v) computer games, (vi) talking without interrupted for correction.

FLANDER'S INTERACTION ANALYSIS SYSTEM

- What do you understand by the term teacher behaviour? Discuss the ten categories system of class room interaction analysis.
 - or
 - How would you modify teaching behaviour through Ned Flander's Interaction Analysis techniques?
 - or
 - What do you mean by interaction and describe the procedure and significance of Flander's interaction style in teaching and learning.
- [CBLU, 2018]
- or
 - How would you modify the teaching behaviour of newly appointed teachers by applying Ned A. Flander's Interaction Analysis techniques.

or

□ What are behavioural objectives?

Ans. : Meaning of Teacher Behaviour—The teacher resorts to many types of activities to present the subject matter in relation to Teacher Learner relation. Sometimes he gives explanation, sometimes he asks questions, sometimes he writes on the black board or uses reference material. Sometimes he encourages the students to answer, questions, sometimes he exhibits verbal or non-verbal behaviour to maintain discipline. All these activities are called Teacher Behaviour. According to Ryans, "The term teacher behaviour may be defined as the behaviour or activities of persons as they go about doing whatever is required of teachers, particularly those activities which are concerned with the guidance or direction of the learning of actions."

Teacher behaviour can be expressed in two ways i.e. verbal and non-verbal. The non-verbal is expressed through facial expressions, demonstration, body movements, gesture, body language etc. This teacher behaviour makes teaching effective.

Teacher behaviour is a social interaction. Mutual interaction between the teacher and the student is called Teaching. Observation of verbal behaviour between the Teacher and the student, between a student and student, and evaluation process in the class is called the Interaction method. This is a specific research activity. This is a scientific method of the study of class activities in a chronological method. Through this method all the activities and the behaviour in the class is observed. Through this method, the verbal teaching can be presented both in quantitative and qualitative forms. This method evaluates the influence or the effectiveness of the teacher. In the class, generally the teacher's effect is related to verbal statements. These give rise to social and emotional interaction and to analyse it, is the correct method.

According to Ober "Systematic represents a useful means of identifying, classifying, studying a measuring specific variables as they interact with the instructional learning situation."

"The teacher behaviour may be regarded as a function of the characteristics of the teacher, his environment and the tasks in which the teacher engages." —MC Nergency and Carner

Meaning of Interaction Analysis—An estimate of the teacher efficiency and his ability can be made from the effectiveness of his teaching. The teacher's behaviour or activities can be analysed by systematic behaviour technique. The objective analysis of the teacher behaviour can be made through the interaction that he has with the students in the class room. Every activity that is conducted in the class can be systematically analysed. So Interaction Analysis means, every activity that takes place in the class room, has to be properly analysed and planned and then judged. Interaction Analysis is a Scientific way of research activity. This can also be called a Scientific way of analysing every activity in the class. With the help of this method, every activity and behaviour in the class room can be properly analysed.

The analysis of teacher behaviour has been made by many Interaction Analysts in a systematic method of Interaction Analysis. These methods can be divided into two parts :

- (a) Sign System;
- (b) Category System.

(a) **Sign System**—Means making a list of teacher behaviour. In this list the observer indicates that behaviour which a teacher exhibits in the class room. The

observer does not bother about how many times a particular behaviour is repeated.

(b) **Category System**—Means dividing different behaviours in different units and then making a list there of. The supervisor sees, that the behaviour that takes place in the next 2-3 seconds comes under which category and is related to which category. A record is prepared and the categories are noted. In teaching system, Flander's Interaction Analysis system, is most popular for judging Teacher Behaviour.

Flander's Interaction Category System

In reality, the analysis technique and analysis system of Teacher and Learner is Interaction system only. Among all methods of Interaction Analysis Flander's name is most famous. Flander's thought of this method in 1959, this method was formulated for teacher effectiveness and student welfare. This method is used specially for verbal behaviour and class communication. The communication between the student and the teacher is generally verbal rather than non-verbal. Flander's believed that the verbal behaviour of the class reflects upon the general class behaviour. Verbal behaviour can be analysed with great faithfulness.

Flanders developed this method with his colleagues in Minisota University. With this method, any activity that takes place in 3 seconds or even the less time, can be systematically analysed. This is a factual and scientific method of analysis. The main importance of this method is the initiation and response between two or more individuals. So in this way, there is a verbal interaction between the student and the teacher. Flanders has taken up ten categories which include teacher statement, student Statement, silence etc. The teacher is independent while the student is dependent. In both of them, the balance keeps changing because of changing situations like subject matters, teaching method, level of class etc.

Objectives :

- (1) To recognize teacher behaviour from Teacher student Interaction.
- (2) To do remedial planning.
- (3) To collect factual figures and systematic information/data regarding Teacher-Behaviour, through this method.

Assumptions :

- (1) The class atmosphere has great effect on all the activities of the student.
- (2) The interaction between the teacher and the student has great importance.
- (3) The behaviour of the teacher affects the behaviour of the students.
- (4) Democratic atmosphere affects the performance of the child.
- (5) Verbal behaviour is more credible than non-verbal behaviour.
- (6) Class behaviour can be changed by Feedback.
- (7) The teacher's class behaviour can be analysed factually.

Flanders has divided the class behaviour between the students and teachers into ten categories. The division is as follows-

- (a) Teacher talk - 7 Categories
- (b) Student talk - 2 Categories
- (c) Silence or confusion - 1 Category

First seven categories have also been divided into two parts. The first part is Direct Talk and the other is Indirect Talk.

Meaning of Various Categories

(a) **Indirect Influence**—The teacher affects the students indirectly in this method in the following first four categories.

Category 1 : Accepting Feelings—In this category, the teacher accepts the feelings

of the students. In this category the students have the right to demonstrate their feelings, they are not punished.

Category 2 : Praise or Encouragement—The teacher praises the activities of the students, saying "good", "excellent" and encourages them by promoting them to explain or to "say more", "explain more", "elaborate further" etc.

Category 3 : Accepting or using Ideas—In this category the teacher accepts the ideas of the students. He explains their suggestions or ideas in his own words or style.

Category 4 : Asking Questions—This category includes only asking questions. After asking questions, the teacher should necessarily get the answers.

(b) Direct Influence or Direct Teacher Behaviour

Category 5 : Lecture—This is a kind of verbal interaction, and this category is used for giving information or for apprising someone of some opinions or when the teacher is trying to explain something, or is discussing something.

Category 6 : Giving Directions—Instructing the children to do something in the class is called giving directions like "all students will stand in front" or "sit down and do the work."

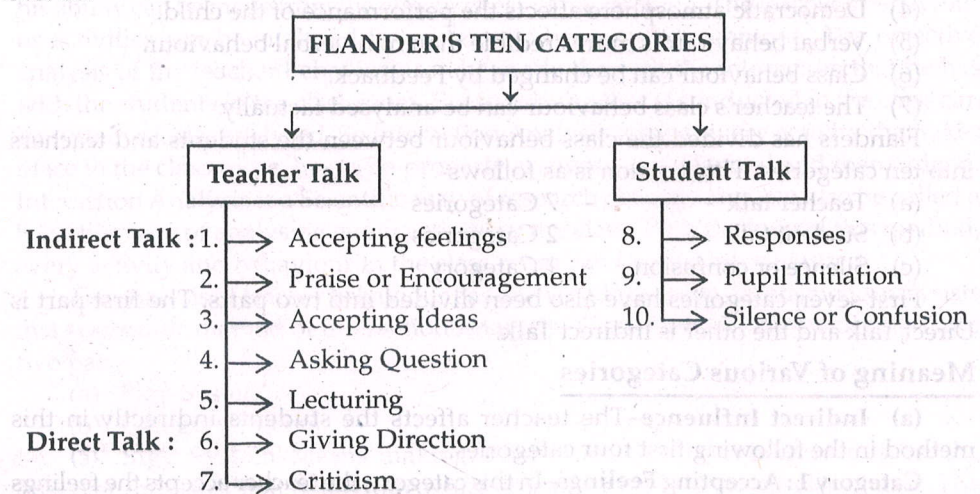
Category 7 : Criticizing and Justifying Authority—This is used, when the teacher criticizes a student for his improper behaviour, and says, "I don't like this" or "I will turn you out of the class", "Be silent", "Get out" etc.

(c) Pupil Talk—This has been sub divided into two groups The first student Talk Response and the other is pupil Talk conversation.

Category 8 : Pupil Talk Responses—When the teacher asks questions from the students, then the students answer the questions and obey the instructions in a verbal manner, then all these responses come in this kind of category.

Category 9 : Pupil Initiation—In this the students initiate the discussion, and are curious to ask questions and say something. This kind of response is included in this category. The expression of ideas by students is included in this category.

Category 10 : Silence or Confusion—In the class the Student's silence or confusion, comes under this category. Many times such situations arise, when in the class, all the children start speaking together and the observer can not make out, who is speaking. And sometimes in the class, such a situation comes, when no one speaks, i.e. no verbal activity takes place. So both the cases come in the category No. 10.



Advantages of Flander's Interaction Analysis :

- (1) Through this method, even without a sender, the information about interaction of the whole class can be got, with the help of Matrix.
- (2) This method provides proper feedback to the teachers and the pupil teachers.
- (3) This is an effective method to estimate the social and emotional atmosphere of the class.
- (4) This is a useful method for in-service teachers also.
- (5) Differences can be found on the basis of age, sex and subject matter by developing matrix.
- (6) This is a factual method of classroom teaching.
- (7) In this method the teacher lays greater emphasis on discussion.
- (8) This is an analytical method to know about each activity of the class.

Limitations of Flander's Interaction Analysis :

- (1) In this method full details of all the activities cannot be obtained and some behaviours cannot be categorized and go unobserved.
- (2) This method is related to the social skills of organizing the class-arrangements etc.
- (3) This is an expensive method, and it is not always possible to use it.
- (4) This is not a complete research method in itself.
- (5) Sometimes the class becomes monotonous, because figures and statistics have to be collected.
- (6) In this method, there are 7 categories of Teacher Talk and only 2 for student Talk. So very little attention is paid to student Talk.
- (7) Training faithful teacher is also a problem. Due to lack of such teachers, this method cannot be used.

Describe Flander's ten category system by outlining its encoding and decoding process.

Ans : There are two main types of Interaction Analysis :

- (1) Encoding
- (2) Decoding

Both these activities are used for analysing Interaction process.

1. Encoding Process—Before knowing the Encoding Procedure, the teacher should be thoroughly familiar with Flander's ten categories. The teacher should have adequate practice of verbal behaviour of the class. For this the direction of an experienced supervisor is necessary. An experienced teacher of Encoding method should be near by, so that if a problem arises, he can offer solutions. During practice, one should develop the skill of encoding the correct category and encode it in 3 seconds. The Supervisor should carefully watch and observe the interaction in the class.

The supervisor, who wants to observe the encoding procedure, should specially sit in such a place in the class room, from where he can watch all the activities and reactions taking place in the class. He should be able to understand it also, because he has to categorize each behaviour. One event or action is encoded after every 3 seconds. So it means that in 1 minute, atleast 20 categories have to be classified and attention is paid to the accuracy of encoding. In a time limit of 40 minutes, no encoding is done in the first 5 minutes because time is needed to settle down. The

categories are encoded in the form of a list on the report card, the teacher's name, class, subject, context and date are written.

After encoding the events of the class, observation matrix is prepared for the explanation of this strategy. In this Matrix the cycle of events and student behaviour are also mentioned. In this observation Matrix there are 10 columns and 10 rows. For making observation matrix, in the beginning of the report, category 10 is entered and at the end category 10, is entered. Two categories are combined together to make a pair.

The first line of the category joins with the columns of the second category and wherever they join, a pair is formed. Where the first category line joins the column of the second category, entry is made in that cell. There are 100 cells in one observation matrix.

All the reactions of the class can be divided into these 10 categories.

2. Decoding Process—To describe or explain the class interaction, a supervision matrix is made with its help, the Teaching behaviour is explained. In the beginning, Flanders has classified observation matrix in the area of behaviour, but later it was known as ratio. This observation table has been interpreted in two ways :

(a) **Quantitative Interpretation :**

- (i) Category Ratios
- (ii) Behaviour Ratios
- (iii) Interaction variables and Qualitative interpretation.
- (b) (i) Clock wise flow of Interaction.
- (ii) Box Blow Diagram.
- (iii) Interaction Model.

So this kind of explanation of interaction matrix is called Qualitative Interpretation. We also come to know whether the teacher's behaviour is democratic or domineering.

Q How do we construct Interaction Matrix in Flander's Interaction Analysis System? Which rules do we observe for construction of Matrix?

Ans. : For analysis of teacher behaviour Flanders has propounded 10 categories of Interaction Analysis. During this observation of interaction, whatever behaviour is noted is encoded i.e. Whatever serial numbers are mentioned in the categories and to explain them, 10x10 (10 columns and 10 lines) are written in the table. This 10x10 table is called Matrix.

Suppose an observer has noted the following Serial no. s- 6, 10, 7, 5, 1, 4, 8, etc. In this observation, one thing is very essential to note. Whatever serial no. begins in each category, it has to end in that serial order only. It is the tradition that 10 is added in the beginning and at the end. So the numbers are written in this kind of serial order :

Category	Serial Nos. and Pairs	Signs	Time
First	$\left[\begin{array}{c} 10 \\ 6 \\ 10 \\ 7 \end{array} \right]$	1	3 Seconds
Pair		1	3 Seconds
Third		1	3 Seconds
Pair		1	3 Seconds

Pair	$\left[\begin{array}{c} 7 \\ 5 \end{array} \right]$	1	3 Seconds
Fifth		1	3 Seconds
Pair	$\left[\begin{array}{c} 1 \\ 4 \end{array} \right]$	1	3 Seconds
Seventh		1	3 Seconds
Pair	$\left[\begin{array}{c} 8 \\ 4 \end{array} \right]$	1	3 Seconds
Ninth		1	3 Seconds
Pair	$\left[\begin{array}{c} 10 \end{array} \right]$	1	3 Seconds

So Pairs are made of the serial numbers just as are shown in the above table.

While making a matrix, only one pair is entered at a time. Matrix has rows and columns. The first line of the pair, tells of the row and numbers are entered in the columns. For example, in the first pair (10, 6) the No. 10 shows the row and No. 6 shows the column. Every pair is joined to the other. All observations are presented as 'N'.

In some observation of the matrix, No.s are entered as (N-1). In the given example, N=10 and in Matrix N-1 i.e. 10-1=9 Nos. will be entered. In every matrix there will be 100 cells.

Example of Interaction Matrix

	1	2	3	4	5	6	7	8	9	10	Total
1											1
2											0
3											0
4								1		1	2
5											1
6										1	1
7					1						1
8				1							1
9											0
10						1	1				2
Total	1	0	0	2	1	1	1	1	0	2	9

For interaction Matrix, there should be minimum of 100 signs and minimum of 20 minutes or more time should be used. After the Matrix, the explanation of the behaviour is important. There are many ways of explaining this interaction. The easiest way to predicting behaviour patterns is in percentage. So percentage of teacher talk, indirect teacher- talk, direct teacher- talk, student- talk, percentage of silence, Percentage of direct and Indirect behaviour, percentage of student initiation, Student's answering percentage, teacher's answering percentage Percentage of teacher's questions etc. can be explained in the form of Matrix.

Teacher-Talk Percentage

In this kind of analysis, we can know, regarding the first seven categories and

even the percentage of the whole class behaviour.

$$\text{Teacher Talk} = \frac{1+2+3+4+5+6+7 \times 100}{N}$$

The percentage can be worked out by adding the tallies of the first seven categories and then dividing them by the total tallies.

Indirect Teacher Talk-

Percentage can be worked out by taking the numbers of the tallies of the first four Categories.

$$\text{Indirect Teacher Talk} = \frac{1+2+3+4 \times 100}{N}$$

$$\text{Direct Teacher Talk} = \frac{5+6+7 \times 100}{N}$$

In this the talks of categories (5,6,7) are added and then divided by the total talks. In this way then percentage can be found out.

Percentage between direct and Indirect behaviour.

$$\text{Direct Behaviour} = 1+2+3+4$$

$$\text{Indirect Behaviour} = 5+6+7$$

In this manner, the percentage of other categories and the percentage between the categories can be found out.

$$\text{Silence and confusion \%} = \frac{\text{Category 10 figures} \times 100}{N}$$

$$\text{Teacher Answering Percentage} = \frac{1+2+3 \times 100}{1+2+3+6+7}$$

$$\text{Teacher's Answer Percentage} = \frac{\text{Figures of 4 category}}{4+5 \text{ category figure}}$$

If we want percentage then, it is multiplied by 100.

In this way, organisation of this Interaction Matrix is called Decoding. And the other is called Quantitative Interpretation.

Due to these sources, we can have knowledge of behaviour in percentages, it also tells us whether the teacher is effective or not. It also indicates, whether the teacher is democratic or autocratic in his behaviour.

Rules for Observation-

For observation, these special rules have to be followed, otherwise this method cannot be followed.

The following are some of their rules :

- (1) If it is not clear to which particular group does the behaviour belong, then the serial no, which is the farthest from category 5, should be noted. If there can be no decision between category 2 or 3, then category 2, will have to be noted.
- (2) If the inclination of the teacher is continuously direct or indirect, then in the observation, no great changes should be entered, till the time, the clear indication of changes in the teacher are found.
- (3) The observer should never use his own point of view.
- (4) If in 3 seconds, more than one category is active then the numbers of all the categories should be noted down. If there are no changes in 3 seconds, then the serial nos. of that category should be repeated.

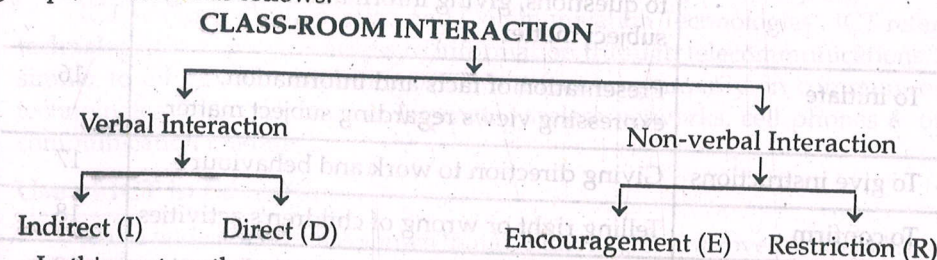
- (5) If Silence is more than 3 seconds, then it should be recorded in Category 10.
- (6) If the teacher calls a student by his name, then it should be recorded in category 4.
- (7) If teacher repeats the students answer and that is correct, then it should be recorded in category 2.
- (8) If the teacher hears a student's idea and says that his idea has been selected for discussion, this behaviour will be related to category 3.
- (9) If one student begins his talk, after another student's talk, then this will be recorded, then this will be written between serial Nos. 9 and 8, as 10.
- (10) Expressions like, "You are right," "O.K. etc. are related to category 2.
- (11) If the teacher cuts a joke, without targeting any student, then this behaviour will be recorded in Category 2 and if he is being sarcastic to a particular student, then it will be recorded in category 7.
- (12) If all the students speak together, in answer to a small question, then this will be recorded in category 8.

Characteristics of Flander's Interaction Analysis :

- (1) With this method the form of Teacher Behaviour can be studied.
- (2) During Teaching Practice, knowledge of Expected Teaching Behaviour can be given to pupil- Teachers in Teaching Institutes.
- (3) This can be used as a helping aid during Micro-Teaching.
- (4) This is a faithful technique of class evaluation.
- (5) There is a provision for feedback.
- (6) This can be used as an aid in education-related research work.

Modifications in Flander's Interaction Analysis System

In this Interaction Analysis System developed by Flanders, there is emphasis only on verbal interaction, not on non-verbal interaction. But in the class-room both verbal and non-verbal interaction have equal importance. So Charles M. Glove (1960) has removed this defect from Interaction Analysis system and developed I.D.E.R. System. In this System, both verbal and non-verbal Interactions can be measured. In this System, class room interaction can be divided into four broad groups, which are as follows:



In this system there are four groups—Indirection, Direct and Encouragement and Restriction. This method is called IDER System. The following activities have been included in each group.

(a) Direct and Indirect Group : (Verbal)

- (i) To accept the feeling of the students
- (ii) To praise or to encourage
- (iii) To use the views of the Students
- (iv) To ask questions

- (v) Lecturing or giving explanation
- (vi) To give instructions
- (vii) To criticize
- (viii) Student Talk (response)
- (ix) Student Initiation (beginning)
- (x) Silence or Confusion

(b) Encouragement or Restriction :

- (xi) Acceptance or unacceptance
- (xii) Agreement or disagreement
- (xiii) To activate or to show indifference
- (xiv) Personal or Common
- (xv) Response or no-response
- (xvi) To be interested or uninterested
- (xvii) To be strong or hard-hearted
- (xviii) Attentive or inattentive
- (xix) Happy or unhappy

Ober has also amended Flander's System and has developed R.C.S. The categories of this System are as following :

RCS

Teacher Category	Verbal Behaviour	Student Category
1. Liveliness in atmosphere	Praise for work, less tension, encouragement	11
2. Acceptance of activities	Positive reinforcement	12
3. Widening scope of responses student	Asking for clarification	13
4. Asking questions	Asking questions related to subject matter	14
5. Giving responses	Answering own questions, giving answers to questions, giving information regarding subject matter	15
6. To initiate	Presentation of facts and information, expressing views regarding subject matter	16
7. To give instructions	Giving direction to work and behaviour	17
8. To confirm	Telling right or wrong of children's activities	18
9. To make the atmosphere peaceful	Making students distinguish right behaviour from wrong one through criticism	19
10. Silence or confusion	All the students speaking together, so that the observer can not take any decision then since for sometime	20

But generally, in research work, Flander's ten category system is used because IDER and RCS interpretation system have not developed as adequately as Flander's.

3.6 USE OF INFORMATION COMMUNICATION TECHNOLOGY (ICT) IN TEACHING LEARNING PROCESS

- Explain clearly the meaning of Information and Communication Technology (ICT). Describe the use and limitation of ICT.

Ans. Meaning of Information and Communication Technology (ICT) : ICT stands for information and communication technologies. It is defined as a 'diverse set of technological tools and resources used to communicate, and to create, disseminate, store and manage information.' These technologies include computers, the internet, broadcasting technologies (radio & television) and telephony.

Information & Communication Technology (ICT) is often used as an extended synonym for information technology (IT). It is more broad in scope. It stresses the role of unified communications and the integration of telecommunications (Telephone lines) and wireless signals, computers as well as necessary enterprise software, middle ware, storage and audio-visual systems, which enables users to access store, transmit and manipulate information.

The term ICT is also used to refer to the convergence of audio-visual and telephone networks with computer network through a single cabling or link system.

However, ICT has no universal definition as 'the concepts, methods and applications involved in ICT are constantly evolving on an almost daily basis.

Hence, ICT is an Umbrella term that includes any communication device or application, encompassing : radio, television, cellular phones, computer and network hardware and software, satellite systems & so on, as well as the various services and applications.

According to Abe Whilmar, 'Information and Communication technology today usually means computer-based management of data or ideas.

ICT covers any product that will store, retrieve, manipulate, transmit or receive information electronically in a digital form, such as personal computers, digital television, e-mail, robot, video & audio conferencing, digital library etc.

ICT stands for 'Information and Communication Technologies'. ICT refers to technologies that provide access to information through telecommunications. It is similar to information technology (IT), but focuses primarily on communication technologies. This includes the internet, wireless networks, cell phones & other communication mediums.

Use of ICT in Education

World wide research has shown that ICT can lead to improved student learning and better teaching methods. A report made by the National Institute of Multimedia Education in Japan, proved that an increase in student exposure to educational ICT through curriculum integration has a significant and positive impact on student achievement, especially in terms of 'knowledge comprehension', 'practical skill' and 'presentation skill' in subject areas such as mathematics, science and social study.

There are three main advantages of ICT tools for education :

1. Through ICT, images can easily be used in teaching and improving the retentive memory of students.
2. Through ICT, teachers can easily explain complex instructions and ensure students' comprehension.
3. Through ICT, teachers are able to create interactive classes and make the lessons more enjoyable which could improve student attendance and concentration.

Education policy makers and planners must first of all be clear about the broad goals of education. These broad goals should guide the choice of technologies to be used. The potential of each technology varies according to how it is used. Haddad and Draxler identify at least five levels of technology use in education: presentation, demonstration, drill & practice, interaction, and collaboration.

For presentation and demonstration, i.e. for the most basic of the five levels, print, audio/video cassettes, radio & T.V. broadcasts, computers or the internet may be used. Except for video technologies, drill & practice may likewise be performed using the whole range of technologies. On the other hand, networked computers and the internet are the ICTs that enable interactive and collaborative learning best.

We can describe the use of ICT in Education under the following heads:

1. Modern Developments: Modern developments in ICT provide exciting possibilities to enhance the quality of education. Interactive education software, open access digital libraries, and cheaper technology may facilitate new forms of interaction between students, teachers, education employees and the community and enhance the quality of education by making it more accessible.

2. Education may be enriched: Education may be enriched by integrating such technologies into traditional educational activities. However, it must be recognized that ICT may never displace the relationship between teacher and learner which is crucial to the learning and development process.

3. ICT has the capacity to enhance the learning process: ICT has the capacity to enhance the learning process and facilitate communication within education, institutions and between educators and learners but it must be used in education institutions under the supervision of qualified well-trained professionals with the expertise in pedagogy & in education to ensure that its impact does not damage or undermine the learning process or the development of learners.

4. Education Unions' Responsibility: Education Unions should:

- (i) Support the use of ICT as an integral part of the provision of quality education for all. They should advocate for the use of ICT in education as a key modern aid to teaching and learning.
- (ii) Advocate for free access for all teachers & learners, support professionals and administrators in education, to high quality dedicated ICT.
- (iii) Insist that ICT in education is appropriate to the learning requirements in the curriculum in each subject, is supportive of the work of teachers & learners and of administrative & professional staff in education.
- (iv) Insist that educators are consulted about the introduction of ICT into education institutions and involved in the design & development of appropriate ICT for education purposes.
- (v) Monitor the implementation of any agreement entered into the governments, national education or school authorities for the provision of ICT by commercial companies.

5. Government & national education authorities activities: Government & national educational authorities should:

- (i) Develop national plans for the use and promotions of ICT in education in consultation with education unions and education community interests & others with relevant expertise.
- (ii) Allocate the necessary funds to develop appropriate ICT for schools and education institutions and ensure that the outcome of such development work is available freely to all.
- (iii) Allocate the necessary funds to ensure that every education institute has access to high quality ICT, both hardware & software, irrespective of where it is situated.
- (iv) Allocate the necessary funds to provide continuous professional development in the use of ICT for teachers and other education professional.
- (v) Ensure that high quality internet access is available to all schools & educational institutions.

6. Commercial ICT Companies: Commercial ICT companies should:

- (i) Recognize the professional integrity and independence of the education institutions & personnel who are affected.
- (ii) Ensure that the primary purpose of the engagement is to provide support for teaching & learning.
- (iii) Ensure that the consultative processes with professional education staff are an essential element in the development of the software and hardware provided.
- (iv) Include provision for monitoring mechanisms for the implementation of any such agreements which include professional education staff.

The use of ICT in education has intensely reformed learning & teaching processes. It has expanded new opportunities for learning and accessing to educational resources beyond those traditionally available. In this condition, the use of ICT in education creates a method of training called E-learning.

ICTs are a potentially powerful tool for extending educational opportunities, both formal and non-formal to previously undeserved constituencies, rural populations, groups traditionally excluded from education due to cultural or social reasons such as ethnic minorities, girls & women, persons with disabilities and the elderly, as well as all others who for reasons of cost or because of time constraints are unable to enroll on campus.

Utility of ICT in education can be discussed under the following headings:

7. Anytime, Anywhere: ICT has one feature i.e. ability to transcend time and space. ICTs make possible asynchronous learning, or learning characterized by a time lag between the delivery of instruction and its reception by learners. For example, online course materials may be accessed 24 hours a day, 7 days a week.

8. Access to Remote Learning Resources: Teachers & Learners no longer have to rely solely on printed books and other materials in physical media housed in libraries for their educational needs. With the internet and the World Wide Web, a wealth of learning materials in almost every subject and in a variety of media can now be accessed from anywhere at anytime of the day and by an unlimited number of people. This is significant for many schools in developing countries, and even some in developed countries, that have limited and outdated library resources.

ICTs also facilitate access to resources persons, experts, mentors, researchers, professionals, business leaders and peers all over the world.

9. ICTs help prepare individuals for the workplace : ICTs help prepare the current generation of students for a workplace where ICTs, particularly computers, the internet & related technologies, are becoming more and more ubiquitous. Technological literacy or the ability to use ICTs effectively and efficiently, is thus seen as representing a competitive edge in an increasingly globalized job market.

10. General Benefits :

- (i) Greater efficiency throughout the school.
- (ii) Communication channels are increased through email, discussion groups & chat rooms.
- (iii) Regular use of ICT across different curriculum subjects can have a beneficial motivational influence on student's learning.

11. Benefits for Teachers :

- (i) ICT facilitates sharing of resources, expertise and advice.
- (ii) Greater flexibility in when and where tasks are carried out.
- (iii) Gains in ICT literacy skills, confidence and enthusiasm.
- (iv) Easier planning and preparation of lessons and designing materials.
- (v) Access to up-to-date pupil and school data, anytime and anywhere.
- (vi) Enhancement of professional image projected to colleagues.
- (vii) Students are generally 'on task' and express more positive feelings when they use computers than when they are given other tasks to do.
- (viii) Computer use during lessons motivated students to continue using learning outside school hours.

12. Benefits for Students :

- (i) More focused teaching, tailored to students strengths & weaknesses.
- (ii) Higher quality lessons through greater collaboration between teachers in planning and preparing resources.
- (iii) Gains in understanding and analytical skills, including improvements in reading comprehension.
- (iv) Development of Writing Skills (including spelling, grammar, punctuation, editing & redrafting, also fluency, originality & elaboration).
- (v) Encouragement of independent and active learning.
- (vi) Development of higher level learning styles.
- (vii) Students who used educational technology in school felt more successful in school, were more motivated to learn & have increased self-confidence & self-esteem.

(viii) Opportunities to address their work to an external audience.

(ix) Opportunities to collaborate on assignments with people outside or inside school.

13. Benefits for Parents :

- (i) Easier communication with teachers.
- (ii) Higher quality students reports – more legible, more detailed, better presented.
- (iii) Greater access to more accurate attendance and attainment information.
- (iv) Increased involvement in education for parents.
- (v) Increased knowledge of children's learning & capabilities.
- (vi) Parents are more likely to be engaged in the school community.

14. ICT & Raising Standards :

Recent research point to ICT as a significant contributory factor in the raising

of standards of achievements in schools, e.g. making good use of ICT within the subject.

Limitation of ICT

1. The information regarding ICT are not available sufficiently in this country, because many schools are unable to afford it and cannot maintain. In such conditions, use of ICT is not possible in such schools.
2. Use of ICT creates doubts and fear.
3. Teachers also don't want to change their traditional methods & systems. They like to be tied with the old systems.
4. Due to the lack of training to the teachers in ICT, its use is very restricted in schools. The use of ICT can be ensured by preparing the teachers at their training stage.
5. As a result of limited informations, out schools are yet not ready to use ICT.
6. To some extent, the students also lack interest in using ICT. It is most probably due to the lack of knowledge in ICT and proper guidance.
7. The school authorities, administration, management etc. are not sensitive regarding the use of ICT in schools. As a result of it, there seems to be very restrictive use of ICT. It has much propaganda but it has failed to get entry in each school.
8. One of the major barriers for the cause of ICT not reaching its full potential in the foundation stage of teacher's attitude.
9. Another important drawback to using ICT in schools is the fact that computers are expensive.

Unit-IV

4.1 EVALUATION IN TEACHING-LEARNING PROCESS : CONCEPT, NEED & CHARACTERISTICS OF EVALUATION

- What is evaluation? What are its goals, characteristics, principles and need and importance?
- or
- Discuss the concept, need and characteristics of Evaluation. [CBLU, 2018]
- or
- What is evaluation? Describe its needs and importance. [CRSU, 2018]

Ans.

Meaning of Evaluation

Evaluation in educational setting is the process, whereby we seek evidence that the learning experiences we have designed for students are effective. Different scholars have defined evaluation differently. Some of the definitions of evaluation are as below :

According to **Goodwill**, "Evaluation in education is the process of judging whether the quantity or extent of something measured is acceptable in terms of some criterion."

According to **McLenn**, "The term evaluation has come to mean 'I like it' or 'I dislike it'—expressions of emotional reaction of programmes, activities, process, whatever one has experienced or is experiencing."

Kothari Commission has said, 'While in doctrinating the new concept of evaluation is that, 'It is now agreed that evaluation is a continuous process, forms an integral part of the total system of educators' and is intimately related to educational objectives'.

NCERT has indoctrinated the definition of evaluation as, "Evaluation is the process of determining the extent to which an objective is being attained, the effectiveness of the learning experiences provided in the class-room, how well the goals of the education have been accomplished."

Evaluation is the most complex & the least understood term. Inherent in the idea of evaluation is 'value'. Generally any evaluation process requires information about the situation in question. A situation is an umbrella term that takes into account such ideas as objectives, goals, standards, procedures & so on.

Educational evaluation is analysis and judgement of the value of an educational input, process and outcome.

According to **Tyler (1951)**, "Education Evaluation is the judgement process for

the educational goal (behavioural objective) realized through education and class activities."

According to **Cronbach (1984)**, "Education Evaluation is the process of information gathering and treatment necessary to make a decision for an education program."

According to **Stufflebeam (1971)**, "Process of information defining, acquiring, and providing necessary for decision-making process."

When we evaluate, we are saying that the process will yield information regarding the worthiness, appropriateness, goodness, validity, legality etc. of something for which a reliable measurement assessment has been made.

There are three terms which look and like. These are measurement, assessment & evaluation. These three terms mean very different things. Let us try to understand the differences between these three terms :

Evaluation is the systematic assessment of the worth or merit of some object. This definition is hardly perfect. There are many types of evaluations that do not necessarily result in an assessment of worth or merit—descriptive studies, implementation analysis and formative evaluations. Hence, it can be modified as : 'Evaluation is the systematic acquisition and assessment of information to provide useful feedback about some object'. Both these definitions agree that evaluation is a systematic endeavour and both use the deliberately ambiguous term 'object' which could refer to a programme, policy, technology, person, need, activity and so on. The second definition emphasizes acquiring and assessing information rather than assessing worth or merit because all evaluation work involves collecting and shifting through data, making judgements about the validity of the information and of inferences we derive from it, whether or not an assessment of worth or merit results.

Characteristics of Evaluation

1. **Evaluation is a Comprehensive Process** : Evaluation is a global process. It assess all aspects of child's development. There are different techniques which are used by the teachers to evaluate the performance of the child.
2. **Evaluation is a Continuous Process** : Evaluation is a continuous process as education. It is not examination but examination is a part of evaluating process. There is no fixed timelimit for the completion of evaluation work. But it is a continuous process.
3. **Evaluation Assesses Academic and Non-Academic Aspects** : Evaluation assesses both the aspects while examination assesses only one aspect i.e. academic aspect only.
4. Evaluation is a procedure for improving the product.
5. Evaluation discovers the needs of an individual and design learning experience.
6. Evaluation is purpose oriented.

Functions of Evaluation

Evaluation does not end with the summarization of results. It has direct bearing on the improvement of the system as a whole. The functions of evaluation are :

- (i) Evaluation provides feedback to the pupils to know their own strengths and weaknesses.
- (ii) It creates a motivational effect on pupils and motivates them towards better attainment and growth.
- (iii) It encourages in building good study habits.

- (iv) Evaluation helps teachers in guiding the growth of pupils.
- (v) It helps in Locating the areas which require remedial measures.
- (vi) It helps the teacher in planning, organizing and implementing learning activities.
- (vii) It provides basis for revision of curriculum.
- (viii) It helps in inter-institutional comparison.
- (ix) It helps the administrator in educational decision making relating to selection, classification, placement, promotion etc.
- (x) It helps in assigning marks and reporting pupil's progress to their parents.

Principles of Evaluation

The following are the main principles of evaluation :

- (i) Determining and clarifying what is to be evaluated always has priority in the evaluation process.
- (ii) Evaluation techniques should be selected according to the purposes to be served.
- (iii) Comprehensive evaluation requires a variety of evaluation techniques.
- (iv) Proper use of evaluation techniques requires an awareness of both their limitations and strengths.
- (v) Evaluation is a means to an end, not an end itself.

Need & Importance of Evaluation

- (i) To fulfil class-room objectives.
- (ii) To diagnose learning difficulties of students.
- (iii) To determine readiness for new learning experiences.
- (iv) To form students class room groups for special activities.
- (v) To assist students in their problems of adjustment.
- (vi) To prepare reports of pupil's progress.

Factors Responsible for Successful Evaluation

The following factors are responsible for successful evaluation :

1. Sampling Technique should be adequate and appropriate sampling procedure must be adopted.
2. Evaluation itself must be well organized.
3. Objectivity of the instrument should be ensured i.e. feasibility of the investigation, reliability of the test (accuracy of data in terms of stability, repeatability and precision.)
4. Validity-test should measure what it is supposed to measure and the characteristics to be measured must be reflected.
5. Rationale of the evaluation instrument.
6. The format used must be the most economical and efficient.
7. Teachers must have been adequately prepared. They must be qualified to teach the subjects allotted to them.

4.2 EVALUATION DEVICES : WRITTEN, ORAL & OBSERVATION

WRITTEN EVALUATION DEVICES

- What do you mean by written tests? What are the types of these written tests? Throw Light on the merits & demerits of these tests.

Ans. Meaning of Written Tests : Written tests are tests administered on paper or on a computer. A test taker who takes a written test could respond to specific items by writing or typing within a given space of the test or on a separate form or document.

A test developer's choice of which style or format to use when developing a written test is usually arbitrary given that there is no single invariant standard for testing.

As the term evaluation is considered more comprehensive than the term 'examination'. Evaluation affects deeply the study habits of the students and teaching systems of teachers. Performance or achievement of the students can be done by the following three ways :

1. Written Examination or Tests
2. Oral Examination
3. Practical Examination

Written examination or tests are of two types :

1. Essay Type Tests
2. Objective Type Tests
3. Short Answer Type Questions

Essay Type Tests

Meaning of Essay Type Tests

The essay type test means such an examination system in which the pupils give responses to many questions of the curriculum in some fixed duration in the form of an essay. The answers to questions in this type of tests are so much lengthy that the tester can measure very easily the powers of thinking, comparison, expression, reasoning and criticism alongwith the ability of organisation of thoughts, language and style etc. Remember that at the recall and recognition level, the achievement of the pupils can be measured by objective type tests, but at the levels of interpretation, application and evaluation, the use of essay type tests is essential.

Merits of Essay Type Tests

The following are the merits of essay type tests :

- (i) **Easy Construction :** The question papers of essay type tests are too short. No special ability is required for preparing them. These can be prepared in a very small duration and at low cost.
- (ii) **Suitable for all Subjects :** These tests can be used for measuring every subject. There are only a few subjects in which objective tests are essential.
- (iii) **Development of Good Study Habits :** These tests encourage such tendencies in the pupils which establish relationship between the various parts of the knowledge and the preparation of an outline of each lesson, which prove advantageous for them. This develops good habits in the pupils.
- (iv) **Measurement of Mental Abilities :** The mental abilities like thinking, reasoning, expression and criticism etc. can only be measured by essay type tests, and not by objectives type tests. It is clear that these tests are useful in measuring the mental abilities and powers of the pupils.
- (v) **Test 'Application of Knowledge' in Different Spheres :** In these tests, the questions start from 'describe', 'elaborate', 'discuss', 'criticise' and 'reason out' etc. In this, the pupils describe the facts on one side, they also

learn to use them in other situations. With this, it can be easy to measure how they use those facts along with their description in other situations.

- (vi) **Definite Improvement in Language and Style** : In these tests, pupils are stressed to write language. This definitely improves the language and style of the pupils. It is not possible in objective type tests.
- (vii) **Measurement of Teacher's Efficiency** : These tests measure the mental powers of the pupils on one side and measure teachers' teaching, planning and efficiency very comfortably on the other side.
- (viii) **Convenient** : The preparation of question-papers and evaluation of these questions need no special ability and labour. Not only this, these tests also do not possess any special instructions which the pupils fail to understand. From this point of view, the essay type tests are convenient to both pupils and teachers.
- (ix) **Freedom of Response** : In these tests, the pupils are free to express their ideas in a logical way. In objective type tests, pupils do not enjoy such freedom of reasoning.
- (x) **Free of Time, Labour and Money** : Thousands of pupils are examined at a time in these tests. Their answer-books are also evaluated simultaneously. Also, success and failure can be predicted without any difficulty. All these things lead to economy of time, labour and money.

Demerits of Essay Type Tests

Even in the presence of all these above mentioned merits, essay type tests cannot measure all the achievements of the pupils. In the following lines, we are throwing light on demerits of these tests—

- (i) **Lack of Clearly Defined Objectives** : The essay type tests lack clearly defined objectives. The pupils fail to understand till last what the tester wants to measure?
- (ii) **Lack of Proper Sampling** : In these tests, five to ten questions are asked from some portions of the curriculum. In other words, questions are not asked from half of the curriculum. This improper sampling fails to evaluate properly the development of the pupils.
- (iii) **Emphasis on Cramming** : In these tests, some specific questions are asked. Hence, pupils do not prepare the entire curriculum, but they try to cram a few main portions. It is the major demerit of this test.
- (iv) **Lack of Incentive** : These tests lack incentives. The pupils are to cram such a material which has no relevance to the actual life. Due to this demerit, the learning tendency does not develop.
- (v) **More Emphasis on Speed and Style** : In these tests, speed and style are emphasized more. The pupils score more who can answer in a good handwriting and with a higher speed in an effective manner. Contrary to this, the pupils score less who cannot write beautifully and in high speed inspite of their complete knowledge of the facts.
- (vi) **Subjectivity in Awarding Marks** : These tests carry higher subjectivity. Hence, uncertainty and variation occur in scores. Since, in these tests, the interest, ability, mood and mental attitude of the tester affect deeply. Therefore, if the same question is given to some other examiner for evaluation, there would be great difference in the scores.
- (vii) **Lack of Validity** : These tests measure the language, style, speed, writing

and cramming power of the pupils. Since these tests fail to measure these powers properly which the tester wants to measure, these tests cannot be designated as valid tests.

- (viii) **Lack of Reliability** : The scores of these tests show variations and the results are also not consistent. Therefore, these tests lack reliability.
- (ix) **Lack of Predictability** : In essay type tests, obtaining scores depends upon the cramming power of the pupils. Hence, on the basis of results of these tests, the first divisioner cannot be predicted to be superior in general knowledge and behaviour too.
- (x) **Interference in Mental and Physical Health** : These tests interfere in the mental and physical health of the pupils, because the pupils start their studies one or two months before the commencement of the examination. This spoils their physical health and they start mental struggle.
- (xi) **Incomplete Answers Appearing as Complete** : In these tests, the pupils may bluff their teachers. It is generally observed that when an intelligent pupil does not know the answer of the question completely, then he writes it in such a round-about way that it appears to the tester a complete answer and he scores well in that.
- (xii) **Difficulty in Evaluation** : Proper evaluation is not possible by these tests. No such definite norm has been made which may evaluate properly the progress of the pupils.
- (xiii) **Costly and Time Consuming** : It costs more in preparing question-papers, their printing and arrangement of answer-books in essay-type tests. Also, it takes months to measure the achievements of the pupils by these tests. Hence, these tests are more expensive and more time-consuming.

Essay Type Tests and Learning Objectives

The essay type tests are devices of measuring learning objectives, Every individual depends upon this device to measure educational achievement and he will depend in future too, because objective type tests measure the achievement of the pupils at recall and recognition levels, but these tests are also important at interpretation, application and evaluation levels for measuring high learning objectives. In other words, these tests cannot be eliminated even in the presence of many merits and limitations. Remember that in this connection, many researches have been conducted. These are conducted only in positive direction. A few are attracted towards making these measuring devices more accurate, valid and reliable. According to the authors, to accomplish this great task, improvements in the following areas are essential—

- (A) In the construction of Test Papers
- (B) In the Examination System
- (C) In the Evaluation of Scripts
- (A) **Improvement in the Construction of Test Papers** : In preparing essay-type question papers, the following improvements should be brought about—
 - (i) **Achievement of Learning Objectives** : While preparing question papers of essay type tests, the teacher should be careful that each question should measure one or the other objective of learning. In other words, the testers should include only those questions by which learning objectives are achieved.
 - (ii) **Full Representation of Curriculum** : The question papers should represent the entire curriculum. In other words, questions should be asked on

every aspect of the curriculum. This makes possible the measurement of prescribed subject.

- (iii) **Nature of Questions** : The questions should be easy, straight and direct. Their language should be according to the mental level of the pupils. Not only this, the tendency of originating and creativity of the pupils should be encouraged.
- (iv) **Emphasis on Difficulty Level** : The question paper should include the questions for slow, average and intelligent pupils. For this, the questions should be simple, average and of higher difficulty level respectively. This enables the pupils to solve the questions in accordance with their ability.
- (v) **No Importance to Alternate Questions** : To give importance to alternate questions means to make the measurement erroneous. Hence, the questions in the question paper should either be compulsory or if such alternate questions are asked, these should be placed under one question.
- (vi) **Number of Questions** : The question papers should neither contain fewer number of questions nor too much number of questions. But the number should be such that the measurement of mental powers of the pupils and prescribed curriculum may take place properly.
- (vii) **Distribution of Marks** : In question papers, all the questions should carry equal marks. Sometimes one question carries many parts. In such situations, the distribution of the marks should be assigned according to the difficulty level.
- (viii) **Provision for Objective-type Questions** : In the question papers, there should be a provision of objective type questions along with essay-type questions. This makes the measurement of the achievement more valid and reliable.

(B) Improvement in the Examination System : The following improvements should be effective in the examination system :

- (i) **Change in the Method of Promotion** : In every class, weekly and monthly tests should occur. The marks obtained on the basis of progress made by the pupils in these tests should be added in the marks obtained in half-yearly and annual examinations.
- (ii) **Provision of Verbal Tests** : There should be a provision of verbal tests in addition to the essay type tests of pupils. This helps in measuring their ability and capacity.
- (iii) **Appointment of Two Examiners** : For verbal tests of the pupils, at least two efficient teachers should be appointed. This will reduce the subjectivity and will improve measurement.

(C) Improvement in the Evaluation of Scripts : The present method of evaluation of scripts encourages variations in the scores. This defective method needs such a change which can make the evaluation of scripts more and more scientific and objective.

In this connection, the following suggestions are being given :

- (i) **Knowledge of the Objective of Questions** : Both, the pupils and the teachers should be clear about the objectives of the questions asked in the question paper.
- (ii) **Preparation of Definite Rules for the Evaluation of Questions** : Before evaluating the scripts, the head examiner should frame definite rules regarding each question and the sub-examiner evaluate the scripts by a

clear scoring method under those rules.

- (iii) **Provision of Central Evaluation** : For evaluation, the scripts should not be sent to the examiners. In order to accomplish this great task, there should be provision of Central Evaluation.
- (iv) **Preparing Ideal Answers of all Questions** : The competent examiners who are appointed to evaluate the scripts at the centre should prepare ideal answers of all the questions before starting their task.
- (v) **Distribution Questions** : For evaluation, the questions should be distributed amongst the examiners instead of scripts. This will control the variation in scores.
- (vi) **Evaluation of Only one Question at a Time** : The examiner should evaluate one question at a time of all the scripts. This will enable the examiner to categorize the pupils by comparing them. Secondly, the examiner will bear in his mind one type of answer. This makes the task easy and the evaluation accurate.
- (vii) **Use of Grading or Rating Method** : The examiner should read all the scripts casually. Then he should divide them in five categories. These are best, good, average, below average and poor. The scripts should have 10% best and 10% poor scripts, 20% good and 20% below average scripts and 40% of average level. Using this method, alphabets a, b, c, d, e should be marked on scripts in place of scores or marks.

Objectives Type Tests and Learning Objectives

1. Meaning of Objective Type Tests : The objective type tests mean those good techniques or tests of measurement which are constructed to eliminate the defects of essay type tests. In these tests, variation of scores is controlled by avoiding subjectivity. In other words, in objective type tests, the achievement of subject-knowledge of pupils, their aptitudes, attitudes, interests and intelligence etc. are measured by receiving answers of 150 to 200 short and pointed questions based on the entire curriculum in a very short duration. These tests have objectivity. This measurement cannot be supported by any type of partiality. Also, there can not be any type of difference regarding answers among the examiners. This will not affect the scorability of the pupils. The scores obtained by them will neither increase nor decrease. The objective type test was first of all constructed by Horace Mann in 1854 in black and white. After this, George Fisher, J.M. Rice, Starch and Thorndike prepared many objective tests for measuring educational achievements. Even at present, various types of objective tests are being used to measure every aspect of the pupils.

2. Simple Recall Tests : Simple recall tests are those tests in which simple questions are asked from the pupils to test their factual knowledge. The pupils answer these questions in a single word or number on the basis of their memory or previous experience.

Sometimes making a symbol is also considered as sufficient. The pupils write answers of these questions in the brackets given in front of these questions. The following are the examples of simple recall type questions :

Direction : Answer the following questions in the brackets given in their front—

- (i) What is the name of capital of U.P.? ()
- (ii) What is the origin of river Ganga? ()

Sentence Completion Tests : In the questions of these tests the examiner leaves

one or two words of the sentence. The pupils fill up the blank space or spaces with the help of their recall. Examples of sentence completion tests are as follows :

Direction : Fill in the blanks in the following sentences :

- (i) India became free in _____
- (ii) Lal Bahadur Shastri was the _____ of _____

Alternate Response Tests : In the alternate response tests, the answers to the questions are given in true or false or yes or no.

Example—Direction : In the following questions, some are true and some are false. If the statement is true, underline 'T' and if it is false, then underline 'F'.

- (i) The capital of India of Lucknow (F)
- (ii) Dehradun is situated on Kark line (T)

Direction : Some questions are being given below. If the answer of these questions is in 'Yes', then write 'yes' in the bracket, and if it is in 'No', then write 'No' in the bracket :

- (i) Was Noorjahan the daughter of Babar? ()
- (ii) Was Aurangzeb a () ruler? ()

Multiple Choice Tests : The questions given in these tests have four or five tests. Of all these four or five answers, only one answer is correct. The pupils select only correct answer.

Examples :

Direction : Some years are given below. Encircle the year in which India became free :

- 1857, 1882, 1922, 1937, 1947

Matching Tests : In these tests, the pupils match test-items of one side to the test-items of the other side.

Examples :

Direction : Names of some states are being given below. Match them accurately and write them in the bracket :

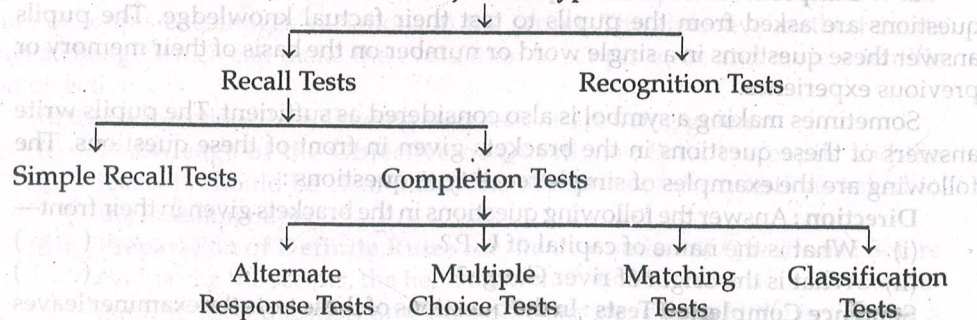
- (a) Punjab (a) Jaipur ()
- (b) Rajasthan (b) Lucknow ()
- (c) Uttar Pradesh (c) Chandigarh ()

Classification Tests : In such tests, names of many places, objects or persons are given, but there is one odd word among them. The pupil underlines that odd word. Example :

Direction : Some words are being given below. Underline the word which looks odd—

- (a) Ashoka, Chandra Gupta, Babar
- (b) Lauki, Palak, Seb (Apple)

Kinds of Objective Type Tests



3. Merits of Objective Type Tests : The following are the merits of objective type Tests :

- (i) **Objectivity :** These tests are objective. The subjectivity of the examiners does not influence these tests.
- (ii) **Validity :** The objective type tests measure for what these are made. Hence, these tests are valid.
- (iii) **Reliability :** These tests are reliable. In these tests, if their administration is repeated on a pupil or a group of pupils, the results obtained every time show relationships.
- (iv) **Comprehensibility :** These tests measure the entire subject area. Hence, these tests are more useful than the essay type tests.
- (v) **Utility :** Objective type tests are more useful because these are constructed to achieve some objective. After achieving the objectives, on the basis of the results, the pupils can be guided easily.
- (vi) **Discrimination :** These tests discriminate both foolish and intelligent pupils. Hence, objective type tests are also known as discriminatory tests.
- (vii) **Practicability :** These tests consume less time. The pupils and the teachers both like them. Hence, these tests are practicable.
- (viii) **Administrability :** The administration of these tests is very simple for teachers. Also, since their directions are easy to understand, hence, pupils follow them very easily.
- (ix) **Easy Scorability :** In essay type tests, evaluation of scripts takes much time, but objective type tests take a few hours to score them.

4. Demerits of Objectives Type Tests : The following are the demerits of objective type tests :

- (i) **Difficult Construction :** The number of questions in the objective type tests ranges from one hundred to two hundred. These questions can only be constructed by experienced, competent and efficient teacher. In other words, the construction of questions in these tests is very difficult.
- (ii) **Standardization of Instruction :** These tests try to bring similarity in the teaching strategies instead of developing thinking, reasoning and logic powers of the pupils. This violates the principle of individual differences which results mental activity into a mechanical activity.
- (iii) **Lack of Organization of Thought :** In these tests pupils answer smaller questions. This develops neither their imagination and original thinking nor they can organize their thoughts in a sequence.
- (iv) **Difficulty of Measuring Mental Abilities :** In essay type tests, it is easy to measure the thoughts, logic and criticism powers of the pupils. In objective tests, the measurement of these abilities cannot be done.
- (v) **Partial Information :** These tests carry very small questions. Their answers are shown either in symbols or in one or two words. This keeps the teacher away from full information regarding a pupil.
- (vi) **Over Simplification :** Sometimes, these tests are so easy that even very weak pupils do write correct answers of such questions. This does not guide the pupils' future properly.
- (vii) **Guessing and Cheating :** While answering questions in these tests, pupil seeks the help of guessing. Sometimes, they bluff the teachers and copy the script of other pupils.
- (viii) **Very Costly :** The preparation and printing of question papers of these

tests is very costly. The financial position of our country is not satisfactory. Hence, such expensive tests cannot be used easily.

Difference between Essay Type and Objective Type Tests

Point	Objectives Type Test	Essay Types Test
1. Objective	Measuring Achievement, prognosis, diagnosis, research, counselling and guidance.	Measuring achievement, prognosis, classification and promotion.
2. Construction	Difficult, time consuming, costly and needs knowledge and training.	Easy, economical and needs no training.
3. Scoring	Simple and easy. The answer key is used. Mastery for the evaluator over subject is not essential.	Difficult. The evaluator should have mastery over subject-matter.
4. Reliability	Highly reliable. Various methods are used for estimating the reliability index.	Less reliable. Reliability index difficult to estimate.
5. Objectivity	Objective in scoring the answers of the students.	Subjective. Scoring procedure is highly influenced by the personal factors of the evaluator.
6. Validity	Personal factors do not influence scoring procedure. Valid, Validity coefficient is estimated by employing various methods.	Not valid. Validity coefficient is difficult to obtain.
7. Norms	Standardized by developing norms.	Cannot be standardized and it is difficult to develop norms.
8. Guessing Factor	Items can be attempted correctly by guessing. Guessing formula is used for the correction.	No scope for guessing but the students can cheat and bluff the examiner.
9. Impact of Hand Writing	Language and handwriting do not influence scores. Expression and language cannot be measured.	Hand writing and language have great influence on scores. Expression, organization of content and language are measured.
10. Learning Objective	Useful for measuring cognitive lower objectives. Cannot be used for affective and psychomotor learning objectives.	Applicable for measuring cognitive and affective higher learning objectives.
11. Administration	Difficult administration Specific instructions are given. It needs training for administering test effectively.	Administration is easy. Specific instruction are not essential. No training is required for this purpose.

Point	Objectives Type Test	Essay Types Test
12. Fatigue	The student feels fatigue because a large number of questions are to be answered in a short period. One hundred items are to be answered in an hour approximately.	The student relatively feel less fatigue, because five questions are to be answered within three hours.
13. Content	High content coverage, because a large number of the items are included in this test.	Poor content coverage. Five questions cannot cover the whole content.
14. Number of Question	It has usually large number of items 50 to 100 or more in one test ranging.	Usually eight or ten questions but five questions are to be attempted in three hours.
15. Preparation of Students	Students have to study the minute concepts thoroughly.	Students have to prepare broad and important concepts. Sample papers are used.

Short-Answer Type Questions

Short answer questions are typically composed of a brief prompt that demands a written answer that varies in length from one or two words to a few sentences. They are most often used to test basic knowledge of key facts and terms.

Short answer questions can also be used to test higher thinking skills, including analysis or evaluation.

Advantages of Short Answer Questions : Short answer questions have many advantages, such as :

- (i) Many instructors report that they are relating easy to construct.
- (ii) They can be constructed faster than multiple choice questions.
- (iii) Short answer questions make it difficult for the students to guess the answer.
- (iv) Short answer questions provide students with more flexibility to explain their understanding and demonstrate creativity than they would have with multiple choice questions.
- (v) This also means that scoring is relatively laborious and can be quite subjective.
- (vi) Short answer questions provide more structure than essay type questions and thus are often easy and faster to mark and often test a broader range of the course.

Tips for Writing Short Answer Questions :

1. In short answer type questions, do use your own words.
2. While writing short answer type questions, do use specific problems.
3. Do use direct questions while writing short answer type questions.
4. While writing short answer type questions, avoid long/complex sentences.

5. Do use prompts that omit only one or two key words at the end of the sentence.
6. In fill-in-the-blank type questions, avoid to take out so many words that the sentence is meaningless.

Suggestions : When using short answer questions to test student knowledge of definitions consider having a mix of questions, some that supply the term and require the students to provide the definition, and other questions that supply the definition and require that students provide the term. The latter sort of questions can be structured as fill-in-the-blank questions. This mix of formats will better test students knowledge because it does not rely solely on recognition or recall of the term.

ORAL EVALUATION DEVICES

□ What do you mean by oral evaluation? What are its merits and demerits?

Ans. Meaning of Oral Tests : Oral exam (Also oral test or vivavoce) is a practice in many schools and discipline in which an examiner poses questions to the student in spoken form. The student has to answer the question in such a way as to demonstrate sufficient knowledge of the subject to pass the exam.

The oral examination is an opportunity for you to demonstrate your knowledge, your presentation/speaking skills, as well as your ability to communicate. They can also be good practice for job interviews.

The exam can be formal or informal, but you should consider all exams formal exchanges in order to make a good impression. For both types, you must listen carefully to the question, and answer directly. Formal exams follow a list of questions in a prepared format. The criteria for evaluation is usually set in a right/wrong format, and can be competitive. For this type of exam, if you wish to add 'related' or qualified information, ask permission first as a courtesy.

Informal exams are more open, your responses are usually longer, and evaluations can be more subjective. Answers are often less exact (right/wrong) and value is added for problem solving analysis and method, as well as interpersonal communication and presentation.

Formal examination involves face-to-face interaction/personal contact, verbal response and immediate response.

There are four basic formats for oral examination :

1. **Interview Style :** The examiner is quizzed on general topics.
2. **Clinical Style :** Questions are specifically regarding diagnosis and treatment plans for a particular patient.
3. **Cognitive Style :** It requires problem solving around specific cases.
4. **Role-playing Style :** In this, students assume various 'roles' with the examinee.

Appropriate Uses of an Oral Exam

Oral examination can be used appropriately in the following manner :

- (i) To assess attributes the require observation and interaction, such as—
 - (a) Interpersonal skills.
 - (b) Ability to think on his feet.
 - (c) Ability to respond to changes in situation.
 - (d) Ability to assume an appropriate role and perform within this role.

- (e) To assess components of competence.
- (f) To assess personal characteristics :
 - Appearance and Manner
 - Competence, alertness & honesty in responding
 - Capacity for empathy & sensitivity
- (g) **Examiners :**
 - (i) Good verbal ability to express themselves.
 - (ii) Ability to control bias & subjectivity.
 - (iii) Properly oriented to testing situation & exam material.
 - (iv) Available in person for sufficiently long periods of time.
- (h) **Candidates or Examinees**
 - (i) Few in number who can be tested individually.

Advantages of Oral Examinations

Oral examination has the following advantages :

1. In involves direct personal contact with candidates.
2. It provides opportunity to take mitigating circumstances into account.
3. It involves flexibility in moving from candidates strong points to weak areas.
4. It requires the candidates to formulate his own replies without clues.
5. It provides opportunity to question the candidate about how to arrive an answer.
6. It provides ability to test depth and breadth of candidates thinking process and logic of arguments.
7. It provides opportunity for simultaneous assessment by two examiners.

□ Explain the term 'Oral Assessment'? Why it is needed? How students can be prepared for oral assessment? Point out its demerits also.

Ans.

Oral Assessment

Oral assessment refers to any assessment of student learning that is conducted by the spoken word. Many modes of communication can be used in assessment. Writing is no doubt most common, with essays, tutorial papers, laboratory reports and written examinations dominating traditional assessment. Online text communication may be a significant recent variation on the written mode.

Some assessment, especially in areas such as the creative arts, relies on the direct observation of the student's performance or other creative work.

Assessment can be exclusively oral or as in frequently the case, can be combined with other modes of communication, depending on the nature of the assessment task. What makes the assessment 'oral' is that at least part of the assessment & part of the assessments and of what counts towards a student's mark or grade, depends on what the student communicates by word of mouth.

Of course, it is not only the student who speaks. Oral assessment may involve an assessor or assessors posing questions orally, with varying degrees of spoken interaction as the assessment proceeds. Moreover others may be involved in the assessment. Oral assessment can also be in the following forms :

1. **Presentations :** It includes the in-class presentation on a prepared topic and the group project report to the class.

2. **Interrogations** : It includes the viva within undergraduate or graduate course work in which the student is quizzed by one or more examiners the short interview of the students to confirm their authorship of a written paper.

3. **Assessment of Language Skills**

Why assess orally or need to oral Assessment?

There are many reasons to assess our students orally, these are :

1. **It is the Best Way to Assess Particular Learning Outcomes or Abilities**

: While oral assessment can be applied to almost any kind of learning outcome, it seems to be particularly useful in relation to students' applied problem-solving abilities, where they need to apply what they know to more-or-less complex scenarios. In such contexts oral assessment can provide insight into students' cognitive processes. This assessment can be used to assess interpersonal qualities such as confidence, self awareness and aspects of professionalism that may not be evidenced in other modes of assessment.

2. **It Allows Probing of the Depth and Extent of Students' Knowledge :**

One of the most important characteristics of most forms of oral assessment is that follow-up questions can be used to determine the limits of what the student knows. Unlike a written exam, assessors can ask the student to elaborate on an answer and can use a series of carefully graduated questions or probes until they have reached the limit of what the student knows. Assessors often express surprise at how well their students perform in oral assessments.

3. **It Reflects the World of Practice :** Practice includes both the fields of professional practice such as law, teaching or nursing for which our students are preparing as well as less clearly defined fields of work for which their university studies are preparing them. Most fields of practice are dominated by talking rather than writing—listening and responding as a client discusses his or her needs, teaching a class of students.

4. **It Improves the Quality of Student Learning :** Oral assessment can promote learning in several ways :

(i) Students who anticipate being asked questions that they cannot predict conclude that the best way to handle this situation is to develop a thorough understanding of what they are studying.

(ii) Students may prepare particularly thoroughly in order to avoid seeming foolish in front of their examiner or their peers.

(iii) Some students seem reluctant to voice ideas that they do not 'own', i.e. they want to ensure that they have a genuine understanding of what they are saying.

5. **It Suits Some Students :** Some students may be better able to express themselves orally than in writing, while others may have particular difficulties with writing owing to dyslexia, impaired vision or other factors. Yet other students may have a particular wish or need to develop their ability to communicate about their discipline orally, knowing that this will be of benefit to them when they enter the workforce.

6. **Unclear or Ambiguous Questions can be Re-expressed or Immediately Clarified :** Written examinations are based on an assumption that the written word is unambiguous and readily understood, in the way it was intended, by all students. This may often not be the case. Oral assessment provides the opportunity to ensure that each student understands the questions being asked.

7. **It Guarantees the Work the Student's Own :** When students are not able

to rely on written work, or when they are subjected to questions and probing of their understanding, they must rely on their own work, and their own words.

Preparing Students for Oral Assessment : Students need to learn about forms of assessment just as they learn about other things. Rarely is it enough simply to tell students in writing or verbally in class what is required. Several steps can be taken to help familiarise students with the oral assessment format and requirements as suggested by Gordon Joughin in a short guide to oral Assessment :

- (i) Find out what previous experiences of oral assessment your students have had as a basis for comparing and contrasting your assessment.
- (ii) Provide clear written information about the assessment and spend time discussing this in class.
- (iii) Provide opportunities for practice in class time. For example, if the assessment is based on group presentations, build short presentation activities with time for discussion and feedback into regular class time.
- (iv) If the assessment is carried out in front of peers, use peer evaluation & feed back to help students become familiar with criteria & standards.
- (v) Take time to debrief students following the assessment. Verbal feedback & opportunity to discuss what went well and where improvement could be made will help students in similar future assessments.
- (vi) Students are often not experienced in expressing themselves orally within their chosen discipline. Build in opportunities for speaking in class, in different informal and semi-formal ways. Use in-class strategies that require all students to speak frequently including short talks.

Disadvantages of Oral Assessment

1. **Undue Anxiety :** Some anxiety can be beneficial in oral assessment, but anxiety that interferes with a student's performance will not give a true indication of his or her ability. Anxiety may be a special impediment for students with particular mental health problems. Practising presentations in class and providing rehearsals for vivas may help. Sometimes a student who experiences undue anxiety may need to be accommodated through alternative arrangements for their assessment.

2. **Hearing or Speech Difficulties :** Students with hearing and speech impairments may also require some adjustment to the assessment process.

3. **Time :** Oral assessment can be time consuming which becomes particularly problematic with larger classes. On the other hand many forms of oral assessment can be quite short, and marking can occur very quickly at the end of the assessment.

4. **Lack of Anonymity :** Examiners inevitably know whom they are examining.

5. **Bias :** Concerns are sometimes expressed that examiners may be influenced by students' dress, gender, educational background.

6. **Novelty :** The form of oral assessment being used may be unfamiliar to the student.

7. **Recording :** Many universities, and good practice, require us to keep a record of the assessment for future reference in case of appeal. Making and storing audio or video recording can be difficult to arrange.

8. **Some other Disadvantages of Oral Examination :** Oral examination has some other disadvantages also :

1. It Lacks standardization.
2. It Lacks objectivity and reproducibility of results (Halo effect)
3. It permits favouritism and possible abuse of contact.
4. It suffers from undue influence or irrelevant factors.
5. It suffers from shortage of trained examiners to administer the examination.
6. These are excessively costly in terms of professional time in relation to the limited value of the information it yields.

OBSERVATION EVALUATION DEVICES

- ❑ What do you mean by Observation? What are its types? How is it useful as an evaluation device? or
- ❑ Explain about the meaning, types, steps, merits and demerits of observation method. [MDU, 2018]

Ans. Observation : Carter V. Good has written about observation method :

1. Observation is specific, not haphazard looking ground for general impressions.
2. Scientific observation of behaviour is systematic, not chance dropping in or, a situation opportunistically.
3. Observation is quantitative, recording the number of instances certain types of behaviour are noted.
4. Observation is recorded immediately, notes are made promptly rather than trusting them to memory.
5. Observation is expert, being done by someone trained to do such work.
6. Observational results can be checked and substantiated to ascertain reliability and validity.

According to Good, "Observation deals with the overt behaviour of persons in appropriate situations."

Hence, observation is an important tool of collecting information about a person. By observation, description can be obtained about various types of behaviours and activities. By this method, details regarding a person's day-to-day activities and behaviours can be collected at some fixed times. Observation method is not useful in studying as person individually only but it is useful in studying a group of persons too. Observation method is an old method. It is being used traditionally since long by human beings, e.g., a child's behaviour, continuous observation of a patient by a doctor etc. Now observation method is much used in the field of psychology and education. In guidance process, this method is used to study an individual.

1. Types of Observation

The classification of observation is done according to the circumstances. Hence, the person providing guidance will have to decide the type of observation which he wants to use. Observation is of the following types :

1.1. Classification by Jersield and Meigs : Observation is of the following types according to them :

- (a) **Free Observation :** For this observation, the person is free to observe.
- (b) **Controlled or Manipulated Observation :** For this observation, some situation is created for observation.

(c) **Partially Controlled Observation :** It is a sort of mixed observation i.e. free and controlled.

1.2. Bonny and Hamplemen : According to them, observation is of two types—(a) Casual Observation, (b) Controlled Observation

According to **Bonny and Hamplemen**, Controlled observation is of two types. First, it is an observation of a definite task or behaviour. Second, the behaviour is to be observed in some special situation. Hence, in second type, the observer creates circumstances or situations. In other words, by controlling the conditions the behaviour is observed.

According to **Bonny and Hamplemen**, the classification of observation can be done on the basis of form of observation record. According to them, observation can be of the following two types :

- (i) Unrecorded Observation
- (ii) Recorded Observation

1.3. Classification According to Number of Individuals : Sometimes, observation can be classified according to the number of persons. According to this classification, the observation can be of two types :

- (a) Individual Observation
- (b) Group Observation

1.4. Classification According to Situation : Observation can be classified according to the situation. According to this, the observation is of two types :

- (a) Direct Observation
- (b) Indirect Observation

In 'direct observation', an individual is observed in the real situation. In indirect observation, a person is observed on the basis of collected information in order to understand him. For collecting reliable informations, systematic direct observation proves appropriate. Direct observation is known as systematic observation.

1.5. Standardized and Natural Observation : A person is studied by standardized observation when needed. At the time of study, reactions made by a person clarify many qualities. On the other side, in natural observation, a person is observed through his day-to-day activities in a natural way.

1.6. External and Internal Observations : In the case of external observation, one has to depend on some other person, i.e., one person verifies the qualities of the other person and prepares the record. Under internal observation, a person is subjected to self-motivated observation and expresses himself.

1.7. Directed or Finding : In directed observation, a person is observed on the basis of ready-made list. In this, a person observes a person in some given situation.

1.8. Standardized and Natural Observation : Standardized observation is done when a person is to be examined. In the examination period, it makes many qualities of the person very distinct, in the natural observation, a person is observed while he is involved in the daily outline. Then some result is drawn about that person.

Hence, we see that we can observe a person to study him in the guidance programme.

2. Steps of Systematic Observation

The following steps should be followed for a systematic and regular observation :

2.1 Selection of Various Aspects of Behaviour for Observation : In the observation method, it is the main problem that what aspects should be observed? Sometimes, in some situation, some activity is overlooked by the observation. Hence, before observation, all the aspects of the behaviour to be observed must be decided.

2.2 Make Clear the Meanings of Selected Behaviours : It is necessary to make clear the meanings of selected behaviours under the first step. If these meanings are not clear, then the observations made by two persons may differ.

2.3 Training of Observer : For observation, training of the workers is necessary. If training is not provided, the scoring may show the differences or deviations. Such differences in their decisions may occur due to various reasons, such as lack of attention. Training can reduce such variations. The persons can be subjected to the practice of observation.

2.4 Quantifying Observation : After observation, it is necessary to quantify the observed behaviours. This quantity can be in the form of numbers. In short, the quantification of observations means counting the number of similar behaviours which are repeated again and again.

2.5 Recording or Writing Report : The observed facts after observation must be recorded or noted down, because these facts cannot be left on memory alone. It is very difficult to remember all the facts in a natural order or sequence. Using of code words for the various categories of behaviours is the proper method. Tape recording or photographing are other methods. This writing work should not be done in the presence of pupils.

3. Principles of Observation

The following principles should be followed while observing :

3.1 Observation of One Student at a Time : At a time, only one student should be observed. Observation of more than one student lacks reliability.

3.2 Observation of Students in their Regular Activities : The observation of the students should be done through their regular activities, such as during studying in the class-room, in the sports field, while promoted to the next class.

3.3 Observation Over a Long Period : The observation should go over a long period. Observation for short-duration is not reliable.

3.4 Observation of the Whole Situation : While observing, the observer should not focus on the pupil only. Those situations or conditions should also be observed in which that pupil or person is to work.

4. Advantages of Observation

4.1. Observation method is useful in both the situations i.e., individually as well as in groups.

4.2. Observation method can be used by all the persons. For this method, special or comprehensive training to a person is not essential. Only some preliminary type training can enable a person to use this method.

4.3. Observation method is useful in studying the younger children. The observation of children is easier. The reason of its utility in the case of children is that the knowledge of language of these children is very limited. In such conditions, children express their feelings through activities. We can understand them by observing their activities.

4.4. A person or a pupil can be observed in natural situation. A pupil or a child plays in all the situations. In these situations, these children can be observed properly.

4.5. Observation is the record of a pupil's real or actual behaviour.

4.6. Observation method is very simple and highly non-technical. It can be a complete method with some preliminary training.

4.7. Data collected by observation seem to be more realistic. When the informations are collected from other sources, these look less reliable.

4.8. The emotional and social reactions of a person can be very easily observed by the process of observation.

4.9. A teacher can use the observation method in academic situations properly.

4.10. A continuous observation by the teachers and observer makes their sense organs more skilled.

4.11. For coaching, the sports skills can be observed.

4.12. This method proves cheaper because neither it needs any laboratory nor any device.

4.13. This method is flexible and it can be used in many situations.

5. Limitations or Demerits of Observation

5.1. Sometimes observation task becomes partial or full of favouritism because some pupils influence, by fair or unfair means, his class teacher. In such a situation, the teacher concentrates on his good qualities only. His drawbacks are overlooked.

5.2. The description written after observation also differs. The reason of these differences is - no simultaneous attention towards the various aspects of the behaviour.

5.3. Observation consumes much time. Observation for short time is not reliable. Hence, to increase its reliability, observation should be done for a longer period.

5.4. Sometimes, mental and physical fatigue also influences the process of observation.

5.5. There is scarcity of trained observers. Sometimes untrained observers collect meaningless material.

5.6. It is a subjective method. Sometimes, the observer adopts much lenient attitude towards the person who is to be observed.

5.7. Sometimes artificiality appears in the behaviour of a person. This makes the observation erroneous.

5.8. By this method, sometimes personal problems and experiences cannot be observed.

5.9. It is difficult to know the inner (covert) behaviour of a person through observation. It is possible to observe overt behaviour only.

5.10. It is impossible to know about unconscious mind through observation method.

5.11. Reporting of the observation cannot be cent-percent right.

5.12. Sometimes, for observation, repetition of the events keeps us waiting for a long time.

4.3 TYPES OF EVALUATION : FORMATIVE, SUMMATIVE AND DIAGNOSTIC

- Describe the types of methods of evaluation in education.

OR

□ Explain different types of evaluation. [MDU, 2018]

OR

□ What do you mean by formative, summative and diagnostic evaluation in teaching and learning? Describe in detail.

Ans :

Methods of Educational Evaluation

1. **Evaluation Types Based on Domains** : Bloom (1956) suggested a taxonomy of educational objectives, setting standards on the content of education and behaviour dimensions, and dividing into goals of cognitive, affective and psychomotor domains.

1.1 **Evaluation of Cognitive Domains** : This evaluation measures the achievement of cognitive education goals that can be achieved by conceptual process such as memorizing, understanding and reasoning on educational content specified in the educational goals.

1.2 **Evaluation of Affective Domain** : This evaluation looks at changes or improvements in interest, merit, confidence and attitude or characteristics such as a spirit of cooperation, responsibility, law-abiding nature, sociality, and self-consciousness.

1.3 **Evaluation of Psychomotor Domain** : This evaluation measures the achievement of educational goals that can be achieved by using whole of parts of the body such as hands, feet, legs and shoulders.

2. **Evaluation Types Based on Methods** : According to the educational process or program evaluation method, Scriven (1965), divided evaluation types into :

2.1 Formative Evaluation

2.2 Summative Evaluation

2.3 Diagnostic

2.1 **Formative Evaluation** : The purpose of formative evaluation is to find out whether after a learning experience, students are able to do what they were previously unable to do. Its ultimate goal is usually to help students perform well at the end of a programme. Formative evaluation provides the evaluator with useful information about the strength or weakness of the student within an instructional context.

This evaluation accumulates information to enhance methods and optimize education while the education is in progress.

It is the evaluation used to monitor student's learning progress during instruction with the purpose of providing on going feedback to student, and teachers regarding success and failure of teaching/learning process. Formative evaluations strengthen or unprove the object being evaluated.

Formative evaluation takes place during the programme or learning activity. It is conducted while the event to be evaluated is occurring and focuses on identifying the progress towards purposes, objectives or outcomes to improve the activities, course, curriculum, program or teaching and student.

Formative evaluation refers to process evaluation while summative evaluation refers to product evaluation.

How Formative Evaluation Helps the Teacher?

Formative evaluation enables the teacher in the following way :

1. It helps the teacher to draw more reliable inference about his students than an external assessor, although he may not be as objective as the latter.
2. It enables the teacher to identify the levels of cognitive process of his students.
3. It helps the teacher to choose the most suitable teaching techniques and materials.
4. It enables the teacher to determine the feasibility of a programme within the classroom setting.
5. It enables the teacher to determine areas needing modifications or improvement in the teaching-learning process.
6. It enables the teacher to determine to a great extent the outcome of summative evaluation.

What Points to be Focused in Formative Evaluation

The following questions can be included which are often asked in this type of evaluation :

1. What is the objective of lesson?
2. What teaching techniques will be most suitable to transmit the knowledge or skill?
3. What material will be needed to teach the lesson?
4. What evaluation techniques would be used to assess student achievement? Will they be effective or not?
5. What assignment or project should be given as part of or apart from class work?
6. Has the objective been achieved?
7. In what sequence will the different aspects of the topic be treated? How much time should be given to different aspects of the topic?
8. What progress are the students making? What difficulties are they encountering relative to the topic?
9. What additional facilities or resources would enhance the knowledge or skills gained by the students?
10. Are students' needs and interests being met? Are the students able to transfer their knowledge or skills to other areas?

Main Features of Formative Evaluation

'Formative' is used in a developmental sense, as children are in their 'formative' or developing years and are susceptible to growth and change. The evaluation target is instruction in its formative stage, instruction that is developing and not yet finished or 'grown up' and is thus amenable to revision.

'Evaluation' is the data gathering process to determine the worth or value of the instruction of its strengths and weaknesses. The identified strengths and weaknesses are used to revise the instruction to improve its effectiveness and appeal. Thus, 'formative evaluation' is a judgement of the strengths and weaknesses of instruction in its developing stages, for purposes of revising the instruction to improve its effectiveness and appeal. The evaluation is conducted by collecting data about the instruction from a variety of sources, using a variety of data gathering methods and tools.

Formative evaluation is not an activity to prove or validate the effectiveness

of your instructional design, it is part of the instructional design itself. In other words it is not an add-on process to find out if your instruction is effective, it is a problem finding part of a design and product development process. Many organisations see formative evaluation as a waste of resources, or as a sign of insecurity about quality of the instructional development effort. Many training and education organisations that utilize formative evaluation do so because they understand it is part of the design of effective instruction, and because they see it as cost-savings measure.

In nut shell, the main features of formative evaluation are as following :

1. It is diagnostic and remedial.
2. It makes the provision for effective feedback.
3. It provides a platform for the active involvement of students in their own learning process.
4. It enables teachers to adjust teaching to take account of the results of the assessment and to incorporate varied learning styles in deciding what & how to teach.
5. Recognizes the influence of the assessment on the motivation and self-esteem of students.
6. Offers an opportunity to the students to improve their performance post the feedback is given.

Purposes of Formative Assessment

Formative assessment is similar to diagnostic assessment but differs in that it provides on giving feed back to the teacher about the effectiveness of instruction. Formative assessment encompasses a variety of strategies, used selectively to accomplish one or more of the following purposes :

1. Monitor student learning and provide feedback to students and parents.
2. Identify areas of growth.
3. Motivate students and provide incentive to study.
4. Help focus attention and effort.
5. Emphasize what is important to learn.
6. Provide practice in applying, demonstrating, and extending knowledge, skills and attitudes.
7. Encourage goal-setting and monitor achievement of goals.
8. Reflect on program structure and effectiveness, and modify or adjust teaching as necessary.

Utility of Formative Evaluation for Students

1. **Mastery of Learning :** This evaluation helps the students in attaining mastery in learning and speeds up the learning.
2. **Learning the Subject Matter :** It helps in knowing the subject matter of every learning unit and helps in learning the behaviour according.
3. **Sequence of Learning :** In this evaluation, students get assistance in dividing the learning sequence in smaller units.
4. **Purpose for Learning :** In this evaluation, the learning goals can be determined.
5. **Effective Reinforcement :** As a result of this, the students get reinforcement in achieving mastery in learning units.
6. **Diagnostic Value :** It has diagnostic value. It diagnoses the problems of

the students. After this, adequate remedies can be done for the solution of those problems.

Disadvantages or Limitations of Formative Evaluation :

1. It makes the judgement before the activity is completed and not being able to see results before judgements are made.
2. It interrupts the flow of outcomes.
3. It has a chance for the false sense of security when formative evaluation is positive and the final results are not positive as predicted earlier.

Advantages of Formative Evaluation

1. Formative evaluation attempts to identify the content (i.e. knowledge or skill) which has not been mastered by the students.
2. It attempts to appraise the level of cognitive abilities such as memorization, classification, comparison, analysis, explanation, quantification, application and so on.
3. It attempts to specify relationships between content and levels of cognitive abilities.
4. It emphasizes the parts instead the entity.
5. In it, the events are recent thus of marking accuracy and preventing distortion by time.
6. The results can be used to improve the student performance, programme of instruction or learning outcome before the programme or course has concluded.

2.2 Summative Evaluation : It is conducted at the end course. It's purpose is to form a judgement about the performance of a student, effectiveness of an instructor effectiveness of the course and it is regularly scheduled at the end of academic terms. Summative evaluations examine the effects or outcomes of some object. The final, total evaluation, which takes place after fixing and reproving by formative evaluation, gives a diversified decision about a completed education process or the detail result or effectiveness of program. Summative evaluation often attempts to determine the extent the broad objectives of a programme have been achieved. It is concerned with purposes, progress and outcomes of the teaching-learning process. Summative evaluation is judgemental in nature and often carries threat with it in that the student may have no knowledge of the evaluator and failure has a far reaching effect on the students. However, it is more objective than formative evaluation. Some of the underlying assumptions of summative evaluation are that :

1. The programmes objectives are achievable.
2. The teaching-learning process has been conducted efficiently.
3. The teacher-student-material interactions have been conducive to learning.
4. The teaching techniques, learning materials and audio-visual aids are adequate and have been judiciously dispensed.
5. There is uniformity in classroom conditions for all learners.

Summative assessments are used to evaluate student learning, skill acquisition, and academic achievement at the conclusion of a defined instructional period—typically at the end of a project, unit, course, semester, program, or school year. Generally speaking, summative assessments are defined by three major criteria :

1. The tests, assignments, or projects are used to determine whether students have learned what they were expected to learn. In other words, what makes an assessment 'summative' is not the design of the test, assignment, or self-evaluation, but the way it is used, i.e. to determine whether and to what degree students have learned the material they have been taught.
2. Summative assessments are given at the conclusion of a specific instructional period, and therefore they are generally evaluative, rather than diagnostic—i.e. they are more appropriately used to determine learning progress and achievement, evaluate the effectiveness of educational programmes measure progress towards improvement goals, or make course placement decisions, among other possible applications.
3. Summative assessment results are often recorded as scores or grades that are then factored into students permanent academic record, whether they end up as letter grades on a report card or test scores used in the college-admission process.

In formative assessment, detailed information is collected that educators can use to improve instruction and student learning while it is happening. In other words formative assessment are often said to be 'for learning' while summative assessments are 'of learning'. In common man's language, when the cook tastes the soup, that is formative assessment. When the customer tastes the soup, that is summative assessment. Some of the most well-known and widely discussed examples of summative assessments are the standardized tests administered by states and testing organizations, usually in Maths, reading, writing and Science. Other examples of summative assessments include :

1. End of unit or chapter tests.
2. End of term or semester tests.
3. Standardized tests that are used to for the purposes of school accountability, college admissions, or end-of-course evaluation.
4. Demonstrations of learning or other forms of 'performance assessment'.

While most summative assessments are given at the conclusion of an instructional period, some summative assessments can still be used diagnostically. For example, the growing availability of student data, made possible by on-line gradings systems and data bases, can give teachers access to assessment results from previous years to other courses. By revising this data, teachers may be able to identify students more likely to struggle academically in certain subject areas or with certain concepts.

The summative evaluation is sometimes referred to as external evaluation. It is a method of judging the worth of a program at the end of the program activities. The focus is on the outcome. The various instruments used to collect the data are questionnaires, surveys, interviews, observations and testing. The methodology used together in the data should be a specified step-by-step procedure. It should be carefully designed and executed to ensure that the data is accurate and valid.

Questionnaires are the least expensive procedure for external evaluations and can be used to collect large samples of graduate information. The questionnaire should be tested before using to ensure the recipients understand their operation the way the designer intended. All instructions should be clearly stated.

Summative assessment is sometimes referred to as assessment of learning and formative assessment as assessment for learning.

2.3 Diagnostic Evaluation : Meaning of Diagnostic Evaluation : Diagnostic assessment is an essential device in a teacher's 'tool kit'. It can be used to diagnose strengths and areas of need in all students. Diagnostic assessment involves the gathering and careful evaluation of detailed data using students knowledge and skills in a given learning area.

Diagnostic assessment (Also known as pre-assessments) provide instructors with information about student's prior knowledge and misconceptions before beginning a learning activity. They also provide a base-line for understanding how much learning has taken place after the learning activity is completed. Instructors usually build concepts sequentially throughout a course. Diagnostic assessment is a distinct form of measurement. Its purpose is to ascertain, prior to instruction, each student's strengths, weaknesses, knowledge and skills.

Establishing these permits the instructor to remediate students and adjust the curriculum to meet each learner's needs.

A diagnostic assessment or pre-assessment often focuses on one area or domain of knowledge. It can provide educators with information about each student's prior knowledge before beginning instruction. You can use a diagnostic assessment to assist them in developing lesson plans and providing differentiated instruction to meet children's needs.

Even though the words 'assessment' and 'Evaluation' are commonly used interchangeably in our everyday speech, there are subtle differences between them. They differ in terms of scope, purpose, findings and the uses there of.

Evaluation of individual performance is often accomplished by grading or rating. Evaluation is typically a broader concept than assessment as it attempts to deal with all aspects of a performance.

Assessment is typically used to analyse a particular process associated with performance e.g. how accurately someone interprets or how interpreting changes with a change in conditions. Diagnostic assessment provides a detailed analysis of performance.

Diagnostic evaluation involves the identification of students whose learning or classroom behaviour is being adversely affected by factors not directly related to instructional practices.

This type (Diagnostic) of evaluation is concerned with finding out the reasons for students persistent or recurring learning difficulties that cannot be resolved by standard corrective measures or formative evaluation.

The aim of diagnostic evaluation is to find out the causes of learning problems and plan to take remedial actions.

Observational techniques or specially prepared diagnostic techniques can be used to diagnose the problem.

Like formative assessment, diagnostic assessment is intended to improve the learner's experience and their level of achievement. However, diagnostic assessment looks backwards rather than forwards. It assesses what the learner already knows and/or the nature of difficulties that the learner might have, which, if undiagnosed, might limit their engagement in new learning. It is often used before teaching or when a problem arises.

Diagnostic evaluation has a placement function and to take place before instruction. It may be used to determine the presence of pre-requisite skills, to determine the pupils prior level of mastery or to classify the pupil according to various characteristics related to instruction. Diagnostic evaluation may also be used to

evaluation. The teacher must develop and render an informed and professional judgement within the context of institution, students and their future employees.

3. **Distribute Time Effectively** : Spend enough time to make a thoughtful, professional judgement, with reasonable consistency, then move on. Repeatedly reviewing work does not lead to perfect objectivity.

4. **Be Open to Change** : Your grades and grading system will be interpreted and used within the system that is not the one you wish for or the one you experienced as a student. The social meaning of grading changes over time. Be open to change but careful of grade inflation.

5. **Listen and Observe** : Students attach a meaning to grades that will most effect learning. Be clear with the students about these meanings. In establishing grades, you are invoking cultural beliefs and values that will share the learning potential of your grading process. The better you understand the culture, the better you can manage the grading process.

6. **Communicate and Collaborate with Students** : Explain the criteria and standards you hold for their work and seek their active engagement in the learning process. Collaborate with the students to work toward common goals.

7. **Integrate Grading with Other Key Processes** : Make grading integral to everything else you do.

8. **Seize the Teachable Moment** : Informal feedback and discussion about grades is good for students. Emotional moments can be valuable teaching moments in which lessons and values can be imparted to your student.

9. **Making Student Learning by Primary Goal** : Values can clash between internal and external forces. More student involvement leads to more learning and personal development.

10. **Be a Teacher First, A Grate Keeper Last** : Understand the student, believe in them, figure out what they need and help them learn no matter their background. Provide all students an equal chance to learn.

11. **Encourage Learning-Centred Motivation** : Motivation is a key to learning and grades have the ability to provide this motivation to an extent. Attitudes towards grades, more than the grades themselves, negatively affect student's motivation to learn.

12. **Emphasize Student Involvement** : This is the bottom line for learning.

□ Describe the various types of grading schemes in the field of evaluation.

Ans :

Types of Grading Schemes

The following types of grading schemes are available in the field of evaluation :

1. **Percentage Grading** : Percentage grading is using a percentage scale (percent of 100) usually based on percent correct on exams and/or percent of points earned on assignments. It is the most common method in use in high school and grading colleges. It is used today as a grading method or as a way of arriving at letter grades.

2. **Letter Grading and Variations** : In it, a series of Letters (Often A, B, C, D, F) or letters with plusses and minuses as an ordered category scale—can be done in a norm - referenced (Standard-based) manner.

Four category variations system was used in 1813 in Yale. In 1920, letter

grading was seen as the solution to the problem of reliability of percentage grading and was increasingly adopted.

3. **Norm-referenced Grading** : In this, students are compared to each other using class standing as the basis for assigning grades (usually letter grades). It was advocated in early grading 1900s as scientific measurement. Educational disadvantages were known by the 1930s.

4. **Mastery Grading** : Grading Students as 'masters' or 'passers' when their attainment reaches prespecified level, usually allowing different amounts of time for different students to reach mastery. It originated in 1920s as a grading strategy. It became associated with the educational strategy of mastery learning.

5. **Pass/Fail** : In it, a scale is used with two levels (Pass and Fail), sometimes in connection with mastery grading. In 1851 the University of Michigan experimented with pass/fail grading for classes.

6. **Standards (or Absolute Standards) Grading** : In it, originally, student performance is compared to a pre-established standard (Level) of performance; currently, standards grading sometimes means grading with reference to a list of state or district content standards according to pre-established performance levels. Grading according to standards of performance has been championed since the grading 1930s as more educationally sound than norm-referenced grading. Current advocates of standards grading use the same principle but the term 'standard' is now used for the criterion itself, not the level of performance.

7. **Narrative Grading** : It involves writing comments about student's achievement, either in addition to or instead of using numbers or letters. In it, a normal instructional practice (Describing students' work) in an assessment context.

Another Classification of Grading

There is another grading system which is as follows :

1. **Letter Grades** : With the letter grade system, students can receive A, B, C, D or F grades. Letter grades are usually calculated with a nine or 10-point range assigned to each letter. A is the highest grade, associated with 90% accuracy or higher. A score of 80 percent to 90 percent correct is represented with the letter. B, C grade mean 70% to 79 percent correct and a D is 60 percent to 60 percent correct. An F grade is given for a performance with 59 percent accuracy or less. Often in this grading system, a plus sign (+) is used if a student is on the cusp of a higher grade, for example 79 percent would be a C+. A minus sign (-) is used if the score is at the lower end of the grade scale, for example, a B- is 81 percent.

2. **4.0 Grading Scale** : The 4.0 grading scale is another common type of grading, often used in conjunction with letter grades. This scale typically is used in high schools and colleges, as a means to calculate a grade point average (GPA). When a student's average grades work out to an A-90 percent or higher - it is considered a 4.0 GPA. A student with a B average (80 percent) would have a 3.0 GPA; C average (70 percent) is a 2.0; and a D average (60 percent) is a 1.0 grade point average.

3. **Mastery Grading** : A new trend in grading systems is mastery. Many school systems in kindergarten through 12th grade, are moving away from the sometimes-subjective traditional grading systems toward the more concrete mastery grade systems. This style of grading uses M for mastery, which demonstrates that a stu-

dent has mastered the standard by showing accuracy 80 percent of the time. If a student is not quite slow in mastery, he is progressing and is given a score of P. If a student exceeds mastery of the standard, he/she can receive an E. If a student is failing to progress toward mastery, he receives an LP grade. The goal is a report card containing all M grades, meaning the student has mastered all the standards for his level.

Mastery grading demonstrates to students that their achievement is a work in progress. It emphasizes that it is OK to be progressing (P) toward mastery, with the assumption that eventually the student will reach a mastery (M) score. In the mastery grading system, grades are broken down by each content standard, rather than broad subject area with a score of E, M, P or LP given for each standard. Students who do not master a standard can continue to practice, and demonstrate mastery at another time. This system clearly shows students and parents what the student knows and doesn't know, unlike traditional grading, reflects achievement for an entire subject without specific information about strengths and weaknesses.

Grading Introduced by CBSE: In the grading system as introduced by CBSE, New Delhi, students' performance will be assessed using conventional numerical marking mode, and the same will be converted into the grades on the basis of the pre-determined marks ranges as detailed below (as Secondary Level):

Marks Range	Grade	Grade Point
91-100	A1	10.0
81-90	A2	9.0
71-80	B1	8.0
61-70	B2	7.0
51-60	C1	6.0
41-50	C2	5.0
33-40	D	4.0
21-32	E1	—
20 & Below	E2	—

Methods of Grading

- Holistic Grading:** Assign a grade (based on subjective deliberation), and provide feedback to substantiate the grade (when needed).
- Competitive Grading:** Read all student papers, and place in rank from best to Worst Award higher grades to papers, which demonstrate lower student ability. Then, for all papers below the higher student ability, provide feedback on a separate sheet. For papers at the top of the grading of the grading spectrum, provide positive feedback with a quick comment such as 'no changes required', or 'no immediate concerns'. Providing feedback on a separate sheet is much more specific and asks the students to self correct, rather than providing 'proof-reading'/editing marks' on the paper itself, which students are simply inclined to change.
- Rubric Grading:** Provide students with a list of criteria for grading showing a range of scores (RUBRIC). Then, grade students according to the rubric.
- Issue based Grading:** Compose an entire list of student errors and mistakes. Consider a range (or number of student errors/mistakes allowable to attain a particular grade). For example, A range might allow 4 errors/mistakes, B range might allow 8 etc. As you find a consistent type of error, consider this one error/mistake. Then, add up the total of errors found. Do not consider individual errors one

-- look for patterns. Then provide the student with a list of the types of errors found.

5. **Contract Grading:** At the beginning of the semester, you may elect to offer 'Grade Contracts' to students. In return, for a particular work ethic, you may offer students a particular grade. You must stipulate the criteria for A's, B's, C's etc., then allow students to choose the grade they want for the class. Students then sign a contract to agree to work towards those grades. For each paper, you may point out how students fail/succeed in meeting their goals (externally or terminally), how ever you do not need to provide direct feedback to them on the paper.

6. **Standard-Based Grading:** You can provide a listing of standards/conditions which point towards a specific grade. For example, an A paper must be : completely free of run-ons. The content must be well-presented. The sources must be correct. B papers must be : some what free of run-ons, splices etc. Content must be fairly well presented. Most of the sources must be correct.

7. **Peer Response Grading:** Allow the student to obtain feedback from a group of students. Once feedback has been obtained from peers, decide on a holistic grade for the peer.

8. **Model-Based Grading:** Provide Students with models of ideal writing, then allow them to compose papers according to the model as the 'Gold Standard'. Subjectively grade according to how closely the paper resembles the 'Gold Standard'. The 'Gold Standard' should not be perfect. You might consider using one of your best papers from a previous semester as a realistic semester for comparison.

Purposes of Grading

- To communicate the achievement status of students to their parents and other interested parties.
- To provide information to students for self-evaluation.
- To select, to identify, or group students for certain educational paths or programs.
- To provide incentives for students to learn.
- To document student's performance to evaluate the effectiveness of instructional programs.

4.5 CONTINUOUS & COMPREHENSIVE EVALUATION

- What do you know about continuous and comprehensive evaluation? Explain its concept in detail.
- or
- Explain in detail the meaning of continuous and comprehensive evaluation. Give its advantages and disadvantages. [CBLU, 2018]

Ans. Meaning of Continuous and Comprehensive Evaluation (CCE): Continuous & Comprehensive evaluation (CCE) is a process of assessment. This approach to assessment has been introduced by state governments in India, as well as by the Central Board of Secondary Education in India, for students of sixth to tenth grades & twelfth in some schools.

The main aim of CCE is to evaluate every aspect of the child during his presence at the school. The CCE method is claimed to bring enormous changes from the traditional 'chalk & talk' method of teaching, provided it is implemented accurately.

CCE helps in improving student's performance by identifying his/her learning difficulties at regular time intervals right from the beginning of the academic session

and employing suitable remedial measures for enhancing their learning performance. The scheme of CCE has inbuilt flexibility for schools to plan their own academic schedules as per specified guidelines on CCE.

Over the years it is the opinion of every educationist, teacher & general public that the annual school examinations based on tests of 2-3 hours duration convey limited information on various elements of curriculum & range of learning in any subject. In view of this drawback in the existing system of evaluation, it is desirable that students should not be subjected to continuous evaluation only, but comprehensive also.

The term continuous and comprehensive evaluation (CCE) is used for school based evaluation of pupils in which their assessment is done on a continuous basis throughout the year and which is also comprehensive in nature in the sense that it is not confined to assessment in scholastic subjects but also covers co-scholastic areas such as performance in Games/Sports, Physical Education, Creative Education, Art, Music, Dance, Drama, other cultural activities and personal and social qualities.

In CCE, the comprehensive component takes care of assessment of all round development of the child's personality. The CBSE introduced CIE in primary classes in 2004. The achievement records and its formats was also circulated for class I to V with the objective of facilitating holistic learning in the school. The focus was on identifying the talents of the learner and empowering with positive inputs. A five-point rating scale was recommended. CBSE also recommended the elimination of the pass/fail system at the primary classes. Under CBSE, the class IX students are assessed through the CCE by the school itself. As per the CCE system, students will be assessed in two areas : scholastic and co-scholastic.

1. **Scholastic Areas :** For assessment of scholastic areas, the academic year is divided in two terms and two types of tests will be conducted to assess the academic subjects. In this pattern two Formative Assessments (FA) and one summative assessment is done in the first term i.e. April to September. Similarly, in second term i.e. October to March two F.A.s and one summative assessment is done.

Term	Types of Assessment	% of Weightage	Total
Ist Term April to September	Formative Assessment-1	10%	50%
	Formative Assessment-2	10%	
	Summative Assessment-1	30%	
IInd Term October to March	Formative Assessment-3	10%	50%
	Formative Assessment-4	10%	
	Summative Assessment-2	30%	

Formative Assessment : Formative assessment is a tool for a teacher to continuously monitor the progress of a student. The assessment (in secondary) may include quizzes, conversations, oral testing, visual testing, projects, practical, assignments, class test, class work, home-work etc. The teacher is free to take any number of formative tests in his/her subject during the year but only four formative tests will be taken into account in each subject. Performance of the students will be reflected in grades. In primary classes the formative tests will be in the form of dictation, oral test, class test, home work, class work, assignments and projects (III to V) memory tests, story telling, Quiz (III to V) or anyother tool found suitable by the teacher.

The formative tests are purely informal, however the teacher will inform the

date & time of test before hand. These tests will be taken in the regular periods only.

Summative Assessment : The summative assessment is the terminal assessment of performance at the end of instruction. Under the end term, summative assessment, the students will be tested internally. The summative assessment will be in the form of a paper-pen test conducted by the schools themselves. It will be conducted at the end of term twice a year.

GRADING : All assessment with regard to the academic status of the students shall be done in marks and overall assessment will be given in grades in 9 point scale in secondary classes (IX & X), 7 point scale for middle school (classes VI to VIII) and 5-point scale for primary (classes I to V). The report cards will carry the grades only. The performance of the students in the primary classes will also be shown in grades (5-point scale). The grades will be given on the basis of performance of the students in all the 6 tests. The grading system is as follows :

Primary Classes (I to V) i.e. 5-point scale

Grade-1	Outstanding	A*	90% to 100%
Grade-2	Excellent	A	75% to 89%
Grade-3	Very Good	B	56% to 74%
Grade-4	Good	C	35% to 55%
Grade-5	Can Do Better	D	Below 35%

Secondary Classes (VI to X) (9-Point Scale)

Marks Range	Grade	Grade Point
91-100	A1	10.0
81-90	A2	9.0
71-80	B1	8.0
61-70	B2	7.0
51-60	C1	6.0
41-50	C2	5.0
33-40	D	4.0
21-32	E1	-
20 and Below	E2	-

2. **Evaluation of Co-scholastic Areas :** Assessment in co-scholastic areas is done using multiple techniques on the basis of identified criteria. Assessment of co-scholastic areas is done at the end of the year on a 5 point grading scale.

Co-scholastic areas of evaluation include :

- (i) Life skills, i.e. thinking, social and emotional skills.
- (ii) Attitude and values, i.e. towards teachers, school-mates, school programmes, environment and the value system.
- (iii) Co-curricular activities which are further divided into :
 - (a) Activities : Literary & Creative Skills, Scientific Skills, Visual and Performing Arts, Leadership and Organizing Skills, and other co-curricular activities.
 - (b) Health & Physical Education, that includes areas like Sports, NCC, Gardening etc.

Objectives of CCE

- (i) Encourage development of cognitive skills and de-emphasize rote learning.
- (ii) Make the entire education process a student centric activity.
- (iii) Help develop cognitive psychomotor and interpersonal skills.
- (iv) Make holistic evaluation an integral part of entire education process.
- (v) Improve students accomplishments through regular diagnostics and remedial instructions.
- (vi) Use evaluation to control quality and maintain desired performance.
- (vii) Take decisions about the learner, Learning process and learning environment by determining social utility, desirability and effectiveness of the programme.

Characteristics or Important Features of CCE

- (i) CCE will cover the scholastic and co-scholastic areas of school education.
- (ii) It involves two types of assessment i.e. formative and summative. The periodicity of the two types of assessment are four and twice a year respectively.
- (iii) Formative assessment totals to 40% weightage.
- (iv) Summative assessment totals to 60% weightage.
- (v) These are 9 grades in Part A of scholastic assessment and Part B of the same assessment has five grades.
- (vi) Summative assessment covers non-academic areas like attitudes and skills and there are three grades.
- (vii) If a student secures Grade C in the academic areas his/her marks would range from 51% to 60%
- (viii) CCE advocates absolute grading. This means that grade 9 would imply an AZ grade.
- (ix) The academic term will be divided into two terms.

Advantages of Continuous and Comprehensive Evaluation (CCE)

CCE refers to a system of school based assessment that covers all aspects of student's development. It emphasizes two fold objectives – continuity in evaluation and assessment of broad-based learning. CCE helps in reducing stress of students by :

- (i) Identifying learning progress of students at regular time intervals on small portions of content.
- (ii) Employing a variety of remedial measures of teaching based on learning needs and potential of different students. Hence, feedback provided by CCE can be effectively used in remedial teaching to slow learners.
- (iii) Desisting from using negative comments on the learner's performance.
- (iv) Encouraging learning through employment of a variety of teaching aids and techniques.
- (v) Involving learners actively in the learning process.
- (vi) Recognizing and encouraging specific abilities of students, who do not excel in academics but perform well in other co-curricular areas.
- (vii) Teachers can use varieties of evaluation methods over & above the written tests.
- (viii) Students can be assessed in both scholastic and co-scholastic areas.
- (ix) Evaluation is done throughout the year and therefore it is expected to provide more reliable evidence of students' progress.

- (x) CCE encourages the students in forming good study habits.
- (xi) Teachers evaluate students in day-today basis and use the feedback for improvement in teaching-learning process.
- (xii) It will reduce the drop out rate as there will be less fear and anxiety related to performance.
- (xiii) It will reduce stress and anxiety which often builds up during and after the examinations which could have an adverse impact on young students especially in the age group of 13-15 years.
- (xiv) The emphasis on conceptual clarification through experiential learning in the class-room will increase since there will be more time available for transaction of curriculum.
- (xv) It will help the learner to develop holistically in terms of personality by also focusing on the co-scholastic aspects which will be assessed as part of the continuous and comprehensive Evaluation Scheme.
- (xvi) It is expected to prepare the students for life by making students physically fit, mentally alert and emotionally balanced.
- (xvii) The students will have more time on their hands to develop their interests, hobbies and personalities.
- (xviii) It will enable the students, parents and teachers to make an informed choice about subjects in class XI.
- (xix) It will motivate learning in a friendly environment rather than in a fearful situation.
- (xx) It will equip students with life skills especially creative & critical thinking skills, social skills & copying skills which will keep them in a good stead when they enter into a highly competitive environment later on.

Challenged/Faced While implementing CCE or Drawbacks of CCE

1. CCE implemented in a hurry, thus teachers are still very much on the starting block in terms of comprehension and adoption of CCE.
2. So far, our teachers have been conditioned to the traditional system of evaluation & will take time to understand, apply & realize the value of the CCE.
3. It is an evolving methodology which implies teachers need to be continually educated to ensure that they are equipped with necessary knowledge & skills.
4. Students are facing increased stress and pressure in the form of project work.
5. Implementation ambiguity at teacher's level has resulted into an overdose of project work for students resulting in lesser time for self study.
6. A typical report and runs into 6-7 pages.
7. Manual generation of report card can take a couple of weeks to a month.
8. Schools also have to maintain performance data in different formats, resulting in duplication of effort.
9. It results in increased stress for teachers.
10. No uniform model of recording the assessment has been followed anywhere so far.
11. Personal attention for the students by the teachers, which is important for the success of CCE, is not possible in many schools as the students-teacher ratio is widely skewed ranging from 40 to 60, thus resulting in efficiency and effectiveness related issues.

Precautions

The teachers should keep in mind the following points while using CCE-

- (i) Use a variety of tools.
- (ii) Understand different learning styles and abilities.
- (iii) Share the assessment criteria with the students.
- (iv) Allow peer and self-assessment.
- (v) Give an opportunity to the student to improve.

