

Teaching Mathematics
ICT 7th Sem Objectives
by

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Unit-2

Different Learning Theories

Objectives

1. Reasoning on the basis of hypothesis is developed at the stage of:
a) sensory motor period b) pre-operational period
c) concrete operational period d) formal operational period
2. At the age of 12 the child enters the period of:
a) discovery thinking b) abstract operation
c) geometric proof d) Concrete operation
3. The child develops logical thinking, such as relation between two objects, classification of objects, classifications of objects, at the stage of:
a) formal operation period b) Concrete operational period
c) pre-operational period d) Sensory-motor period
4. The tendency of a child to fit every new experience into his pre-existing mental structure is called:
a) accommodation b) assimilation
c) transfer d) generalization
5. The child develops the logical classification at the stage of:
a) formal operation period b) Concrete operational period
c) pre-operational period d) sensory-motor period
6. At which stage can student diagnose associative, transitivity and distributive Property of operation?
a) pre operational b) Concrete operational
c) formal operational d) sensory motor

7. Which of the following example from the implications of Piaget's theory is not suitable for secondary school students?
- a) Inverse operation of square root
 - b) Classification of quadrilateral
 - c) Simple combinatorial analysis
 - d) Conservation of Number
8. In which period of cognitive development does the child develop the ability to form hierarchies of sets and subjects?
- a) formal operational period
 - b) Concrete operational period
 - c) Pre-operational period
 - d) Sensory-motor period
9. Which of the following is not a pair of inverse operation?
- a) Sine and Cosine
 - b) Addition and subtraction
 - c) n^{th} power and n^{th} root
 - d) Division and multiplication
10. The educational philosophy of Bruner theory is based on:
- a) Construction theorem
 - b) Notation theorem
 - c) Structure
 - d) Constant and variation
11. In the development of new concept, it is necessary to proceed from the concrete to abstract:
- a) at all stages of learning
 - b) at the stage of formal operation
 - c) at the stage of pre-operation
 - d) at the stage of Concrete operation

12. Bruner's approach to learn mathematics is based on:

- a) the product of learning
- b) process of learning
- c) learning style
- d) structure of learning

13. Which of the following is the important pedagogical implication of Bruner's theory for teaching mathematics?

- a) Inductive approach
- b) Discovery approach
- c) Guided discovery approach
- d) Inquiry approach

14. According to Bruner, students at secondary level are at the stage of:

- a) symbolic mode
- b) iconic mode
- c) inscriptive mode
- d) the structure

15. According to Bruner, the teaching method should be based on:

- a) structure
- b) learning by discovery
- c) problem-solving
- d) intuition

16. According to Bruner, the theory of instruction should be:

- a) based on discussion
- b) prescriptive
- c) based on sequence
- d) All of the above

17. Which of the following is not a correct statement?

- a) The nature of Mathematics is relative
- b) The nature of Mathematics is absolute
- c) The nature of Mathematics is beautiful
- d) The nature of Mathematics is stable

Answers:

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| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| d | b | a | a | a | c | d | b | a | c | a | b | b | a. | b | b | d |

Unit-3 Formulation of Instructional Objectives

1. The level of learning such as to translate verbal material into the symbolic statement, comes under
a) Knowledge b) Comprehension
c) Application d) Analysis
2. Which of the following objectives refers to the teacher's behaviour?
a) To set the necessary conditions for similarity of two triangles
b) To apply mathematical knowledge, skills and reasoning in solving square root
c) To introduce different methods of solving quadratic equation
d) To define a triangle
3. The objective "To explain mathematical terms and concept" is:
a) a general objective b) a behavioral objective
c) an affective objective d) Psychomotor
4. Which of the following is the lowest level of cognitive domain?
a) Knowledge b) Comprehension
c) Application d) Skill
5. Which of the following is the highest level of Cognitive domain?
a) Knowledge b) Comprehension
c) Application d) Evaluation

6. Which of the following is not true?

- a) The method of teaching any concepts are suggested by instructional objectives
- b) The nature of the teaching materials and how to use them properly are determined by instructional objectives
- c) The evaluation of students' progress is suggested by instructional objectives
- d) Instructional objectives are determined by subject matters

7. The objective students are able to appreciate the logical structure, order and beauty of mathematics comes under:

- a) Cognitive domain
- b) Affective domain
- c) Psychomotor domain
- d) All of the above

8. Which of the following is the most desirable objectives?

- a) To introduce the formula
- b) To apply the formula
- c) To understand the formula
- d) To develop skill in the formula

9. The objectives "To use set square in constructing perpendicular lines and parallel lines" is a-

- a) general objectives
- b) grade wise objectives
- c) behavioral objectives
- d) All of the above

10. Translation, interpretation, extrapolation behavior falls under:

- a) Knowledge
- b) Comprehension
- c) Application
- d) Evaluation

11. The objective "Manipulate formulae involving dimensions" falls under -

- a) Knowledge
- b) Comprehension
- c) Application
- d) Skills

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| b | c | b | a | d | d | b | b | c | b | d |

Unit-4

Instructional Planning

Objectives

1. Lesson plan helps teacher
 - a) instruct in the classroom
 - b) Evaluate the students' performance
 - c) To determine the quality of students
 - d) all of the above
2. How many essential parts of lesson structure are practising?
 - a) 4
 - b) 3
 - c) 5
 - d) 6
3. A plan in which a teacher mentions how to teach the total unit and evaluate, is called —
 - a) Daily lesson plan
 - b) Weekly plan
 - c) Unit plan
 - d) All of the above
4. Which of the following is true?
 - a) Pre-during ~~the~~ phase is called anticipation phase
 - b) pre-during phase is called building up knowledge
 - c) Pre-during phase is called consolidation
 - d) Pre-during phase is assigning phase
5. Building up knowledge is the
 - a) beginning phase of lesson
 - b) middle phase of lesson
 - c) final phase of lesson
 - d) all of the above
6. A process of deleveraging a lesson is called —
 - a) anticipation phase
 - b) building up knowledge
 - c) Consolidation phase
 - d) None of them

7. Brief overview of teaching structure of totality of subject is known as:
- a) annual plan
 - b) monthly plan
 - c) daily plan
 - d) unit plan
8. Which of the following is not the elements of unit plan-
- a) teaching method
 - b) materials
 - c) evaluating
 - d) certifying rule
9. Mainly daily lesson plan helps the
- a) students
 - b) teacher
 - c) headmaster
 - d) school
10. The ~~b~~ first phase of lesson preparation is
- a) studying curriculum
 - b) writing objective
 - c) selecting teaching (learning activities)
 - d) all of them
11. Personalized instruction is a system of
- a) individual instruction
 - b) Group instruction
 - c) direct instruction
 - d) all of the above
12. Which one of the following is first components of lesson plan-
- a) Introduction
 - b) Antecedent
 - c) Behaviour
 - d) Consolidation
13. In lesson planning, behaviour stage is ^{also} known as:
- a) Consolidation
 - b) Preparation
 - c) Behaviour
 - d) Evaluation

14. Who is credited on development of individualized instruction?
a) Fred S. Keller b) Dewey
c) B.F. Skinner d) Hall
15. Annual work plan is prepared for by
a) Head teacher b) Teacher
c) School management Committee d) School Supervisor
16. Second component of lesson structure fall under
a) Anticipation b) Consolidation
c) Building up knowledge d) Validation
17. Consolidation is known as
a) Last step of lesson structure b) first step of lesson structure
c) Uncertain elements of lesson structure
18. Which one of the following is not concern with PIST?
a) An instruction through multimediu
b) Instructional process according to learners need and capacity
c) It is a process of group teaching
d) Way of individual instruction
19. Which of the following is not principle of instructional planning?
a) Personally meaningful b) Age respectful
c) Promote autonomy d) Teacher controls of know
20. The most common element of Annual work plan is

- ~~1. Body of information about the plan~~
- a) Body of information about the plan
b) Title of lesson
c) Evaluation
d) Motivation Strategy

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| a | b | c | a | b | b | a | d | b | a | a | b | c | a | b | c | a | c | d | a |

Unit-5

Instructional Strategies

Objectives

1. The inductive reasoning:
 - a) proceeds from general to particular
 - b) proceeds from particular to general
 - c) is about the same as the analytic reasoning
 - d) proceeds from particular to particular
2. Conjecture and guessing play an important role in
 - a) the problem solving method
 - b) the deductive reasoning
 - c) the inductive reasoning
 - d) the guided discovery method
3. Which method is effective for teaching verbal problems in mathematics?
 - a) The lecture method
 - b) The problem-solving method
 - c) The discussion method
 - d) The teaching to do method
4. Which pair is impossible?
 - a) Lecture and heuristic methods
 - b) Discussion and lecture methods
 - c) Analytic and synthetic methods
 - d) Lecture and activation
5. A element of prime importance of success in building understanding of new method is:
 - a) to provide exploration to ~~to~~ of new method
 - b) the active participation of the students
 - c) the use of any supplementary means or device which are available and seem likely to be helpful

6. d) The thinking of the students
6. In the assimilation stage of mathematics of learning...
- a) the student and his activities occupy the center of the stage
 - b) the teacher's role is to guide and direct students' work
 - c) the teacher role is less prominent
 - d) All of the above
7. The transfer of learning is the essential element...
- a) in generalization of mathematical concepts
 - b) in classification of mathematical concepts
 - c) in application of mathematical concepts
 - d) All of the above
8. The way we think in the class should mainly be...
- a) Deductive
 - b) Inductive
 - c) Synthetic
 - d) Chaotic
9. The instructional effort which is directed toward strengthening the learning experience through drill, review and application is called...
- a) teaching for retention
 - b) teaching for transfer
 - c) teaching for understanding
 - d) teaching for permanence
10. The basic requirement for a maintenance program in math-teaching is:
- (a) to carry on review work
 - (b) to prevent forgetting
 - (c) to help student to learn new materials

d) to plan drill

11. Which of the following pairs are necessary for actual learning of new materials?
- a) Understanding and ~~assimilation~~ assimilation
 - b) Understanding and transfer of learning
 - c) Assimilation and permanency
 - d) Transfer of learning and permanency
12. According to Polya, what are the phases of problem solving approaches?
- a) Knowledge, skill, understanding and application
 - b) Understanding the problem, making a plan, identification relevant part and looking back
 - c) Understanding the problem, making a plan, carrying out the plan and looking back
 - d) All of the above
13. The strategy of guided discovery encourage students...
- a) to think on their own
 - b) to learn on their own
 - c) to become independent of the teacher
 - d) All of the above
14. If you have to prove $1^3 + 2^3 + \dots + n^3 = \left(\frac{n(n+1)}{2}\right)^2$, which of the following types of proof do you need?
- a) Mathematical induction
 - b) Deductive Proof
 - c) Analytic Proof
 - d) Synthetic Proof

Answer

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|---|---|---|---|---|---|---|---|---|----|----|----|----|----|
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| b | d | b | a | b | a | a | b | d | b | a | c | d | a |

Set-1

1. In the development of new concept, it is necessary to proceed from the concrete to abstract:
 - a) At all stages of learning
 - b) At the stage of formal operation
 - c) At the stage of pre-operation
 - d) At the stage of concrete operation
2. Bruner's approach to learn mathematics is based on:
 - a) The product of learning
 - b) Process of learning
 - c) Learning style
 - d) Structure of learning
3. Which of the following is the important pedagogical implication of Bruner's theory for teaching mathematics?
 - a) Inductive approach
 - b) Discovery Approach
 - c) Guided Discovery Approach
 - d) Inquiry Approach
4. According to Bruner, students at secondary level are at the stage of:
 - a) Symbolic mode
 - b) Iconic mode
 - c) Practive mode
 - d) The structure
5. According to Bruner, the teaching method should be based on:
 - a) Structure
 - b) Learning by discovery
 - c) Problem Solving
 - d) Intuition

6. According to Bruner, the theory of instruction should be
- a) Based on discussion
 - b) Prescriptive
 - c) Based on Sequence
 - d) All of the above
7. Which of the following is not a correct statement?
- a) The nature of Mathematics is relative
 - b) The nature of Mathematics is absolute
 - c) The nature of Mathematics is beautiful
 - d) The nature of Mathematics is stable
8. Which of the following objectives is not the general objective of the ~~secondary~~ school mathematics program?
- a) The student develops the ability to solve the problems
 - b) The student develops attitude and appreciation which leads to curiosity, initiative, confidence and interests
 - c) Student is able to perform four basic operations on algebraic fractions
 - d) The student develops skills in computations which with understanding, accuracy and efficiency
9. In deciding the objective for the curriculum making, the first priority must be given to:
- a) Need of the Country
 - b) Interest of the children
 - c) Availability of teaching aids
 - d) Needs of the children
10. Which of the following is the first step in framing in maths curriculum?
- a) Selection of Contents
 - b) Organization of the Contents
 - c) Selection of the learning experience,
 - d) Formulation of Objectives

11. Which of the following is not the part of the mathematical curriculum?
- a) Objectives
 - b) Text books
 - c) Consideration of learning theories
 - d) Teaching aids
12. Which of the following is not the Curriculum materials?
- a) Scope and Sequence table
 - b) Teachers guides
 - c) Text book
 - d) Teaching unit
13. Which of the following objectives is not the general objectives of the School mathematics program?
- a) The student has the ability to solve the problems
 - b) The student develops attitude and appreciation, which leads to curiosity, initiative, confidence and interests
 - c) Student is able to perform four basic operation on algebraic functions
 - d) The student develops skills in computations with understanding accuracy
14. Which of the following is the general objective of the school mathematics program?
- a) To know Mathematics contributes to his understanding of natural
 - b) To develop the ability to apply Mathematics to daily life.
 - c) To learn to communicate mathematical ideas correctly and clearly to others
 - d) To understand how Mathematics as a science and as an art, contributes to our society

15. The curriculum for most of the teachers consists only the text books thus facts:

- a) Makes teaching more effective
- b) Reflects the objective of mathematics curriculum
- c) Prevents the objectives of mathematics to be applied
- d) All of the above

16. Overview of school mathematics is:

- a) General survey of school math of the past & present
- b) Concerned with changing the existing mathematics curriculum of Nepal
- c) A study of the relevancy of the present mathematics curriculum in the background of the other curricula
- d) A comprehensive study of mathematics curriculum

17. Which of the following statements is the most appropriate comment on the failure of students in mathematics in the school of Nepal?

- a) Student who fail are lazy
- b) Textbook are not well writer
- c) Student of different age groups are taught together
- d) Teachers are not well trained

18. The objective "to mastery over the four fundamental operations" falls under the objective of:

- a) Primary level
- b) Lower Secondary level
- c) Secondary level
- d) All of the above

19. Which topic starts from grade 1 to x?

- a) Number Operations
- b) Charts and graphs
- c) Measurement
- d) Orders and relations

20. Which topic is included in the curriculum of compulsory and optional mathematics of secondary level?

- a) Mathematics b) Trigonometry
c) Vectors d) Function and relation

21. Which of the following is not the component of mathematics curriculum?

- a) Scope & Sequence of Contents b) Teaching method
c) Instructional method d) Identification of needs

22. Function and relation starts from grade

- a) 10 b) 9 c) 8 d) 7

23. Measures of dispersion starts from grade

- a) 10 b) 9 c) 8 d) 7

24. Transformation using matrices at school level are studied at grade-

- a) 8 b) 9 c) 10 d) B.Ed

25. Verification of properties of a circle by construction is done at grade

- a) 7 b) 8 c) 9 d) 10

26. Solution of trigonometric equation is introduced at grade:

- a) 7 b) 8 c) 9 d) 10

27. How many theorems of circles are taught in geometry in Compulsory mathematics of grade X?

q) 5

b) 7

c) 9

d) 11

28. The Mathematics curriculum is evaluated on the basis of its

- a) Relevance of objectives b)
- b) Adequacy of teaching methods
- c) Appropriateness of contents
- d) All of the above

29. How many similarity theorems are taught at secondary level

- a) 2 b) 3 c) 4 d) 5

30. Bearing and Scale drawing starts with grades:

- a) 6 b) 7 c) 8 d) 9

31. Linear programming is introduced in the school at the grade:

- a) 7 b) 8 c) 9 d) 10

32. The inductive reasoning :

- a) Proceeds from general to particular
- b) Proceeds from particular to general
- c) Is about the same as the analytical reasoning
- d) Proceeds from particular to particular

33. The use of technology in education to enhance the learning process called ----

- a) IT b) Information Technology
- c) ICT d) Communication Technology

34. According to Jean Piaget, children develop abstract logic and reasoning skill during
- a) Sensory motor stage
 - b) formal Operational Stage
 - c) Pre operational age
 - d) Concret operational stage
35. What is the use of textbook in a class?
- a) To achieve learning Objectives
 - b) To delimit what is to be taught
 - c) To explain ideas and concepts
 - d) Set new standards
36. What is the best time to evaluate a student's performance?
- a) When the instruction have begun
 - b) When the instruction have ended
 - c) Only at the end of major units of instruction
 - d) Throughout the instructional process
37. Which of the following is the highest level of cognitive domain according to Bloom's taxonomy?
- a) Application
 - b) Synthesis
 - c) Analysis
 - d) Evaluation
38. Which of the following ~~instrumental~~ instructional materials is the best suited for teaching theorems in geometry?
- a) Geoboard
 - b) Chart
 - c) Graph
 - d) Paper folding

39. In which of the following pedagogy, students are more active?

- a) Problem Solving method b) Constructivist method
c) Inductive method d) Lecture method

40. Which assessment does not give opportunity for students to show their natural ability?

- a) Practical exam b) Long answer test
c) Objective test d) Short answer test

41. Which of the following is an action verb for writing specific objectives?

- a) Knowledge b) Understanding
c) Application d) Define

42. Which of the following is a more comprehensive plan?

- a) Synthesis b) Analysis
c) Deduction d) Induction

43. Reasoning on the basis of hypothesis is developed at the stage of:

- a) Sensory motor period b) preoperational period
c) Concrete operational period d) formal operational period

44. At the age of 12 the child enters the period of:

- a) Discovery thinking b) Abstract operation
c) Geometrical proof d) Concrete operation

45. The child develops logical thinking such as relation between two objects, classification of objects, classification of objects at the stage of:

- a) Formal operational period
- b) Concrete operational period
- c) Preoperational period
- d) Sensory-motor period

46. The tendency of a child to fit every new experience into his pre-existing mental structure is called:

- a) Accommodation
- b) Assimilation
- c) Transfer
- d) Generalization

47. The child develops the logical classification at the stage of:

- a) Formal operational period
- b) Concrete operational period
- c) Pre-operational period
- d) Sensory-motor period

48. At which stage can students diagnose associative, transitivity and distributive property of operation?

- a) Pre-operational
- b) Concrete-operational
- c) Formal operational
- d) Sensory-motor

49. Which of the following examples from the implication of Piaget's theory is not suitable for secondary school students?

- a) Inverse operation of square root
- b) Classification of quadrilaterals
- c) Simple Combinatorial analysis

d) Conservation of number

50. In which period of cognitive development does the child develop the ability to form hierarchies of sets and subsets?

- a) Pre-operational
- b) Concrete operational period
- c) Formal operational period
- d) Sensory-motor period

51. Which of the following is not a pair of inverse operations?

- a) Sine and Cosine
- b) Addition and Subtraction
- c) Square and root
- d) Division and multiplication

52. The educational philosophy of Bruner theory is based on:

- a) Construction theorem
- b) Notation theorem
- c) Structure
- d) Contrast and evaluation

53. Which of the following is not the objective of the diagnostic test in mathematics?

- a) To find out the weakness or deficiency of a child in learning
- b) To fill the progress report of children
- c) To give feedback to the parents
- d) None of the above

54. The nature of Mathematics is:

- a) Ornamental
- b) Logical
- c) Difficult
- d) Not for common

55. Who said that " Mathematics is the science which ~~draw~~ draws necessary conclusions ?

- a) Hogben
- b) Locke
- c) Benjamin Peirce
- d) None of the above

56. Mathematics is the science of:

- a) Intellectual
- b) Numbers
- c) Calculations
- d) All of the above

57. Which point is not included in the professional skills of a teacher?

- a) Knowledge of self
- b) To experiment well
- c) Deduction
- d) Satisfactory knowledge of social matter