

CTET Maths Pedagogy Question and Answer, PDF Download - 26 March 2024

Q1. which of the following activities is most likely to develop spatial reasoning among students?

- (a) Drawing bar graphs to represent data
- (b) Identifying patterns in a number-chart
- (c) Solving Sudoku puzzles
- (d) Identifying tessellating figures

Q2. Which of the following is most suitable for teaching children the concept of fractions?

- (a) Cuisenaire rods
- (b) Abacus
- (c) Geoboards
- (d) Number charts

Q3. Which of the following statements is NOT correct with regard to nature of mathematics?

- (a) Mathematics uses special vocabulary to communicate ideas precisely.
- (b) Argumentation skill is important in construction of mathematical knowledge.
- (c) Mathematical concepts are hierarchical in nature.
- (d) Primary level mathematics is concrete and does not require abstraction.

Q4. Identify the correct statement.

- (a) The shape of figure determines the perimeter.
- (b) If two figures have same area, their perimeters are equal.
- (c) If two figures have same perimeter, their areas are equal.
- (d) The units of perimeter and area are same.

Q5. In which of the following statements, number 'three' is used in ordinal sense?

- (a) This box contains many sets of three pencils.
- (b) I live on the third floor of this building.
- (c) This house has three rooms.
- (d) All groups have three team members.

Q6. Identify the correct statement with regard to introducing the concept of triangles at primary level.

- (a) Children should be exposed to triangles of all types and also to other figures.
- (b) Definition of a triangle should be provided first.
- (c) Children should only be exposed to equilateral triangles to avoid confusion.
- (d) Children should be exposed to triangles of all types but exposure to other figures should be avoided.

Q7. Identify the correct statement with respect to the mathematics curriculum.

- (a) The concept of area-measurement should be introduced only at upper primary level.
- (b) The foundation of algebraic thinking can be laid at primary level.
- (c) The concept of fractions should be introduced only at upper primary level.
- (d) The concept of negative numbers should be introduced at primary level for better understanding.

Q8. Following are some questions posed by the teacher in the mathematics classroom

- A. What is the area of the rectangle whose one side is 5 cm and perimeter is 30 cm?
 - B. Find a set of numbers whose median is 4.
 - C. List all prime numbers between 0-8.
 - D. Tell me anything mathematical information you know about rectangles.
- (a) A & C are closed ended and B & D are open ended questions.
 - (b) A & B are closed ended questions and C & D are open ended questions.
 - (c) A, B & C are closed ended and D is open ended question.
 - (d) A is closed ended and B, C & D are open ended questions.

Q9. Which of the following is a desirable teaching-learning practice in the context of Mathematics?

- (a) Students should be told to follow the prescribed steps of solving problems.
- (b) Open ended questions should be avoided to prevent confusion.
- (c) Intuitive understanding of concepts should be encouraged.
- (d) Open book tests should be avoided.

Q10. Rohit realises that square is both a rhombus and a rectangle. He is at what stage of Van Hiele's visual thinking?

- (a) Level 3 (Deduction)
- (b) Level 0 (Recognition)
- (c) Level 1 (Analysis)
- (d) Level 2 (Relationships)

Q11. Which of the following is least likely to impact teaching-learning in mathematics?

- (a) Providing complete solutions to students' wrong answers.
- (b) Enhanced quality of feedback
- (c) Using results of assessment to modify teaching
- (d) Knowing ways in which assessment affected the confidence of learners.

Q12. Which of the following statements regarding mathematics teaching-learning is incorrect?

- (a) Argumentation and negotiation play an important role in creating mathematical knowledge.
- (b) Mathematical learning is a social process involving dialogue.
- (c) Culture and context has no role in constructing mathematical knowledge.
- (d) Mathematical knowledge can be created in primary class students through observation of pattern and generalisations.

Q13. "The sum of any two whole numbers is a whole number."

This property of whole numbers is referred to as

- (a) distributive property
- (b) closure property
- (c) commutative property
- (d) associative property

Q14. Which of the following is the most important aspect of teaching of mathematics at primary level?

- (a) Promoting and preparing for technology.
- (b) Making mathematics part of children's life experiences.
- (c) Developing rigour in calculations.
- (d) Preparing for higher education and employment.

Q15. Which of the following statements is/are true regarding teaching 'Numbers' at primary level?

- A. Intuitive understanding of numbers should be encouraged.
 - B. Writing numbers should be taught in sequence.
 - C. Writing of numbers Numerals should proceed counting.
 - D. Order irrelevance of numbers should be encouraged.
- (a) C and D
 - (b) A and B
 - (c) B and C
 - (d) A and D

Q16. Which of the following is most appropriate strategy for introducing the concept of multiplication of two decimal numbers in the middle school?

- (a) Multiplication as repeated addition should be emphasized.
- (b) Multiplication as inverse of division should be emphasized.
- (c) The algorithm should be used to introduce the concept.
- (d) The process should be visually represented.

Q17. Which of the following is a narrow aim of teaching mathematics?

- (a) To make students proficient in handling numbers and number operations.
- (b) To develop students' generalization abilities.
- (c) To encourage systematic reasoning among students.
- (d) To develop students' ability to argue the truth and falsity of statements.

Q18. Which of the following is most appropriate strategy for teaching students to solve mathematical problems ?

- (a) Teacher should begin by explaining the steps required for obtaining the solutions of the problems.
- (b) Students should be encouraged to view a problem from many perspectives.
- (c) Guess and verify approach should be strictly discouraged.
- (d) The list of formulae required for solving the given set of problems should be provided in the beginning.

Q19. Identify the incorrect statement from among the following:

- (a) Mathematical communication involves precise use of language.
- (b) Conjectures do not have utility in constructing mathematical knowledge.
- (c) Hypothesis have a role in construction of mathematical knowledge.
- (d) The notion of argumentation is central to mathematics.

Q20. Which of the following is a desirable strategy for assessing students' learning in mathematics?

- (a) Students' justification of their responses should be an important basis of assessment.
- (b) Development of mathematical vocabulary should not be a basis of assessment.
- (c) Same tasks should be given to all students for parity.
- (d) Students incorrect answers should be ignored.

Q21. For a given figure to be a triangle, the condition that it is a union of three segments is -

- (a) both necessary and sufficient condition.
- (b) neither necessary nor sufficient condition.
- (c) a necessary but not a sufficient condition.
- (d) a sufficient but not a necessary condition.

Q22. Consider the following statements :

A = If n is even, then n^2 is even.

B = If n^2 is not even, n is not even.

C = If n^2 is even, then n is even.

D = If n is not even, then n^2 is not even.

Which of the following statements is true ?

- (a) B is inverse of A.
- (b) D is contraposition of A.
- (c) C is converse of A.
- (d) D is converse of A.

Q23. Which of the following teaching - learning resources in mathematics cannot be used for visually challenged students ?

- (a) Tiles
- (b) GeoBoard
- (c) GeoGebra
- (d) Taylor's abacus

Q24. Which of the following statements is true ?

- (a) Intuition has no role in generating mathematical knowledge.
- (b) Mathematical statements can be conditional.
- (c) Mathematics consists of all the theorems proved in mathematics books.
- (d) A person good in arithmetical computation is also good in Mathematics and vice - versa.

Q25. Which of the following statements is NOT correct regarding differently abled children of dyslexia in mathematics learning in an inclusive classroom ?

- (a) Dyslexic children may have difficulty in writing down their ideas in systematic and organized manner.
- (b) Dyslexia impacts only language learning not mathematics learning.
- (c) Dyslexia has an impact in a person's co - ordination of verbal and spatial aspects of numbers.
- (d) Visual patterns in mathematics help in overcoming difficulties experienced by dyslexic children.

Q26. Following are four questions posed by a mathematics teacher. Which of the following is an open-ended question?

- (a) If sum of two numbers is 15 and one of them is 7, what will be the other number?
- (b) If the age of Anil is 7 years and his father's age is 5 times more than that of Anil's age. What will be the age of father?
- (c) If sum of two numbers is 17, then what are the numbers?
- (d) What should be added to 17 to get 23?

Q27. A teacher uses the following riddle in the class while developing the concept of place value 'I am less than 5 tens and 4 ones'.

The objective of this riddle is to

- (a) Do a summative assessment.
- (b) Break the monotony of mathematics class.
- (c) Ask close ended questions on place value.
- (d) Reinforce the concept of base 10 and place value.

Q28. Which among the following is/are the objective/objectives of teaching 'shapes' at Primary class.

- (a) To develop visualization skill
 - (b) To memorize the names of geometrical shapes
 - (c) To enhance spatial reasoning ability
- (a) A and B
 - (b) A and C
 - (c) B and C
 - (d) Only B

Q29. Which of the following teaching-learning resources in mathematics can be used for visually challenged students?

- A. Geoboard
- B. Geogebra
- C. Abacus
- D. Graphic calculator

Choose the correct option.

- (a) A and D
- (b) A and C
- (c) B and D
- (d) A, B and D

Q30. While teaching 'geometrical shapes' a teacher thinks of planning a trip to historical places. It reflects:

- (a) Field trips have been recommended by CBSE, so they must be done
- (b) A good break from routine mathematics class and an opportunity to visit the historical places.
- (c) Shapes are an integral part of any architecture and such trips encourage mathematics beyond classroom.
- (d) Teacher has completed most of the syllabus well in time and now needs to provide leisure.

Q31. A primary class mathematics teacher poses the following question to his students:

"Reena and Shama went to shop to buy bag. There were many bags with different price tags. They got confused by looking at so many price tags. Can you help them by arranging the price tags either in ascending or descending order?"

BAG -A → Rs. 4732,

BAG -B → Rs. 2364,

BAG -C → Rs. 1934,

BAG -D → Rs. 3475,

BAG -E → Rs. 2937,

BAG -F → Rs. 3004,

In the given context, which of the following statements is true?

- (a) Only the concepts of ascending and descending order can be strengthened using the question.
- (b) The teacher can use the question to go beyond comparison of numbers and introduce the concept of data handling and sorting of data.
- (c) It is not a mathematical question as it does not involve basic operations on numbers.
- (d) The teacher should avoid bringing contextual questions into the classroom.

Q32. According to National Curriculum Framework 2005, which of the following represents the vision of a mathematics classroom?

- (a) Students memorizing the formulae
- (b) Teacher as the only narrator in the class
- (c) Students copying solved examples from the textbook
- (d) Children posing and solving meaningful problems in the classroom

Q33. Which of the following statements is true for 'Anecdotal Records' as an assessment tool in mathematics?

- (a) It includes the project and field work done by the child
- (b) It is use to record and judge the quality of a child's work against a specified criteria
- (c) It records the presence or absence of a particular skill or process
- (d) It includes written description of child's progress on a day to day basis and provides observational narrative records

Q34. A class III teacher introduces the multiplication in her class using repeated addition and rectangular arrays. She is

- (a) Introducing multiplication through informal strategies by utilizing the previous knowledge and experiences of students.
- (b) Teacher multiple formal algorithms of multiplication.
- (c) Wasting a lot of time and should focus on teaching formal algorithm only.
- (d) Finding leisure time for herself be keeping the students engaged.

Q35. A child is counting the number of balls by putting a finger on the balls one by and saying numbers in order.

She has counted some balls twice. Which pre number concept is yet to be strengthened in the child?

- (a) One-to-one correspondence
- (b) Seriation
- (c) Classification
- (d) Cardinality

Q36. Misconceptions in mathematics can be removed by

- (a) Engaging children with examples and non-examples
- (b) Framing similar questions and repeating them many times
- (c) Lot of practice and drill of questions
- (d) Demonstrating the algorithm again

Q37. Ms. Romi in her mathematics class asks her students to create appropriate situations for following computations:

i. $10 + 2$, ii. 10×2 , iii. $10 - 2$, iv. $10 \div 2$

which of the following statements is correct about the pedagogy used by Ms. Romi?

- (a) She is testing the problem solving skills of students by giving mixed set of problems
- (b) She is testing the language proficiency of students
- (c) She is trying to help students to develop mathematical statements and problems solving skills.
- (d) She is trying to maintain discipline in her class by giving some task to the students

Q38. Which of the following statements are indicative of higher aims of teaching mathematics?

- A. Mathematics education should turn out employable adults who contribute to economic and social development.
- B. Mathematics education should develop child's inner resources like abstract thinking and drawing logical conclusions
- C. Children should see mathematics as a way of life like communicating, discussing and developing attitude for problem solving
- D. Mathematics education should focus on factual knowledge and procedural fluency

- (a) A and C
- (b) B and C
- (c) C and D
- (d) B and D

Q39. According to Newman, there are five levels to be undertaken before a students is able to solve a word problem. they are listed below in a random order.

- A. Comprehend what the task is asking.
- B. Must be able to read the question.
- C. Undertake the necessary mathematical operations.

D. Need to translate the problems into mathematical demands.

E. Represent the answer as a meaningful construct.
What of the following represents the correct order of levels?

- (a) B, A, C, D, E
- (b) B, D, A, C, E
- (c) A, B, E, C, D
- (d) B, A, D, C, E

Q40. Which of the following is **NOT** desirable for the professional development of mathematics teachers?

- (a) Attending workshops and seminars on mathematics
- (b) Developing teaching-learning resources
- (c) Minimum interaction with other mathematics teachers working in same school or in neighborhood schools.
- (d) Participating in faculty development programmes.

Q41. Which of the following statements is **NOT** true about the five steps of the Mathematization?

- (a) Identifying the real problem in the context.
- (b) Memorizing an algorithm.
- (c) Solving meaningful mathematical problems.
- (d) Making sense of mathematical solutions in real life.

Q42. Mathematical concepts form a complex web of connections in which new concepts and previously concepts are inter connected.

Which of the following statements most appropriately describes this?

- (a) Fraction must be taught before whole numbers
- (b) Multiplication and division must precede addition and subtraction
- (c) Number concepts and patterns are building blocks to algebraic thinking
- (d) Proportional Reasoning does not involve algebraic thinking

Q43. Which of the following is indicative of mathematics classroom on Social Constructivist framework?

- (a) A teacher demonstrating the use of dienes block.
- (b) Students responding to a quiz by raising hands.
- (c) Students working independently with Geoboards.
- (d) Students working in collaboration on a project.

Q44. A teacher poses the following problem of algebra to her class:

"Does the graph $x = y^2$ ever intersect the graph of $x = y^2 + 2$? What are the different ways you would use to test your conjecture? Would your conjecture hold true other equations of the form $x = y^2 + b$."

Which of the following statement/statements is/are correct in the given context?

- (a) One of the learning outcomes of posing this questions is comparison and analysis of quadratic equations.
 - (b) Teacher should focus only on getting the solution that the two graphs will not intersect.
 - (c) The teacher can assess the reasoning skills of students.
 - (d) Such question confuse the students and hence should be discouraged in a mathematics classroom.
- Choose the correct option.
- (a) A and C
 - (b) Only D
 - (c) Only B
 - (d) A and B

Q45. For assessing the performance of students in mathematics over a period of time, Mr. Raju has collected exemplary works of his class VIII students which includes assignments, project reports, homework, models, unit tests and class tests etc. the assessment strategy used by Mr. Raju is a

- (a) Cumulative reward.
- (b) Anecdotal reward.
- (c) Portfolio.
- (d) Rubrics.

Q46. The definition “Mathematics is a way to settle in the mind, a habit of reasoning” is given by_____.

- (a) Locke
- (b) Galileo
- (c) Bruner
- (d) Napoleon

Q47. While making a lesson plan on introducing Data handling, a middle school mathematics teacher thought of formulating a four-step process for Data handling.

The four-steps are given in random order.

- A. Collecting the data
- B. Interpreting the results
- C. Formulating the questions
- D. Analyzing the data

Which of the following represents the correct order of process?

- (a) A, C, D, B
- (b) C, D, A, B
- (c) C, A, D, B
- (d) A, D, B, C

Q48. After teaching the topic “Congruence of 2D figures”, a middle school teacher starts a discussion with the students to assess their understanding of the topic. During the discussion, one of the students said, “Two regions having same area are also congruent.”

Which of the following statements is correct with respect to student’s response?

- (a) Student’s generalization is correct.
- (b) Student’s generalization is correct for quadrilaterals.
- (c) Such responses need to be ignored by the teacher.
- (d) Student’s misconception needs to be addressed by the teacher.

Q49. While teaching in mathematics class, a teacher gives the statement “Common Divisor of two integers is a number which divides both the given integers”. The statement is a

- (a) Proposition
- (b) Definition
- (c) Axiom
- (d) Open sentence

Q50. A teacher folds a square sheet of paper into half and punches a hole in the folded sheet of paper. She then unfolds the paper. Which of the following topics she can teach with this activity?

- (a) Symmetry and volume
- (b) Volume and fraction
- (c) Symmetry and fraction
- (d) Surface area of a square

SOLUTIONS

S1. Ans.(d)

Sol. Identifying tessellating figures is the activity most likely to develop spatial reasoning among students.

- It develops special reasoning in students.
- It develops good observation skills in students.
- It develops the searching ability in students for searching the patterns in a number chart.

S2. Ans.(a)

Sol. Cuisenaire rods are the most suitable for teaching children the concept of fractions. To represent a fraction with Cuisenaire rods, a student

places one length of rod directly above another. A simple demonstration would be to use an orange rod to represent the whole and to ask students to identify which rod is one-half its size.

S3. Ans.(d)

Sol. option 1, 2 and 3 are correct with regard to nature of mathematics, but option 4 which is “Primary level mathematics is concrete and does not require abstraction” is not correct. Hence option 4 will be the right answer.

S4. Ans.(a)

Sol. The shape of figure determines the perimeter is the correct statement. Other given options are not correct, because

- If two figures have same area, then it is not necessary that their perimeters are equal.
- If two figures have same perimeter, then it is not necessary that their areas are equal.
- The units of perimeter and area can't be always same.

Hence option 1 will be the correct answer.

S5. Ans.(b)

Sol. An ordinal number is a number that tells the position of something. i.e. First, Second, Third, etc.

Among the given options, option 2 is showing the position of 'three'. "I live on the third floor of this building", in this sentence, "third" is an ordinal number.

S6. Ans.(a)

Sol. To introduce the concept of triangles at primary level children should be exposed to triangles of all types and also to other figures, so that they can understand the difference between a triangle and other shapes.

S7. Ans.(b)

Sol. With respect to the mathematics curriculum, the foundation of algebraic thinking can be laid at primary level, so that students can understand the basic concepts of algebra. Hence option 2 is the correct answer. Other options are not satisfying the scope of mathematics curriculum.

S8. Ans.(a)

Sol. An open-ended questions are questions that cannot be answered with a simple 'yes' or 'no', whereas A closed-ended questions are questions that can be answered with a simple 'yes' or 'no'.

So, A & C are closed ended and B & D are open-ended questions.

S9. Ans.(c)

Sol. Intuitive understanding of concepts should be encouraged is a desirable teaching – learning practice in the context of Mathematics.

S10. Ans.(d)

Sol. The Van Hiele theory describes how young people learn geometry. It postulates five levels of geometric thinking which are labeled visualization, analysis, abstraction, formal deduction and rigor. Each level uses its own language and symbols. So, According to the Van Hiele's visual thinking Rohit is at Level 2

S11. Ans.(a)

Sol. Among the given options "Providing complete solutions to students' wrong answer" is least likely to impact teaching-learning in mathematics".

S12. Ans.(c)

Sol. Among the given options option a, b, and d is correct regarding mathematics teaching-learning, but option (c) is incorrect. Hence option (c) will be the answer.

S13. Ans.(b)

Sol. The sum of any two whole numbers is a whole number. This property of whole numbers is referred to as Closure property. A Closure property is :

Two whole numbers add up to give another whole number. It means that the whole numbers are closed under addition. If a and b are two whole numbers and $a + b = c$, then c is also a whole number. i.e. $3 + 4 = 7$ (whole number).

S14. Ans.(b)

Sol. Among the given options "Making mathematics part of children's life experiences" is the most important aspect of teaching of mathematics at primary level.

S15. Ans.(d)

Sol. For teaching 'Numbers' at primary level:

- Intuitive understanding of numbers should be encouraged.
- Order irrelevance of numbers should be encouraged.

These are important aspects for teaching numbers at primary level, Hence option (d) is correct answer.

S16. Ans.(d)

Sol. Learning strategy is 'the sum of an individual's preferences for physical, social, emotional and environmental elements in the course of learning'. Each learner develops his/her strategy to learning which is rooted in his/her interests and habits. Note that:

- While teaching decimals to students, students should be taught using visual method or aids so that they can understand the concept in a better way.
- 'Multiplication as repeated addition' can be emphasized when teaching multiplication of non-decimal numbers because repeated addition of decimals can be complicated for students.
- Algorithm shows how to solve the problem but it does not connect with the real-life meaning of multiplication.
- Teaching multiplication as 'inverse of division' will not completely explaining the concept of multiplication.

S17. Ans.(a)

Sol. National Curriculum Framework (NCF), 2005 provides a guideline with which teachers and schools can choose and plan experiences that they think children should have.

- It seeks to reform the curriculum and to bring learning experiences in and outside the classroom.

- According to the NCF 2005, "Developing children's abilities for mathematization is the main goal of mathematics education."

There are two kinds of aims in mathematics for school education such as broader and narrower aims.

Narrower aim-

- To develop numeracy related skills
- To develop 'useful' capabilities particularly those relating to numeracy – numbers, number operations, measurements, decimals and percentages

Broader aim-

- Problem – solving
- Use of heuristics
- Estimation and approximation
- Optimisation
- Visualization
- Representation
- Reasoning and proof
- Making connections
- Mathematical communication

S18. Ans.(b)

Sol. Effective teaching is essential to the teaching and learning process. To achieve this, teachers make use of various teaching techniques and strategies to facilitate learning in students. Also note:

- A teacher should always go for child-centred method or approach. So, viewing problem with multiple perspective can be encouraged since it is a child-centred approach.
- Different teaching methods/approaches can be used for different purposes. So, no approach should be strictly discouraged.
- Giving the list of formulae can encourage 'rote learning', so it should be avoided.
- A teacher should encourage his students to think about the problem rather than directly explaining steps for obtaining the solution.

S19. Ans.(b)

Sol. Mathematical Communication refers to the Communication by which learners discuss, share, analyze and make their sense of Maths. It used to express mathematical thoughts and ideas.

Communication in Mathematics develops the ability to organize, consolidate and express mathematical thinking among the students.

Note that:

- Mathematical communication involves precise use of language so that students can understand both problem and solution better.
- Conjectures refers to statements which are likely to be true based on available evidences, but they are not formally proven. They help in constructing knowledge of mathematics.
- Hypothesis refers to an assumption taken to be true (it should not be confused with conjectures since conjectures are based on certain evidences). It helps in proving formulae and theorems in mathematics.
- Mathematics statements are said to be true if certain arguments are proved to be valid, hence the notion of argumentation is central to mathematics.

S20. Ans.(a)

Sol. Assessment is a process of collecting relevant information on student learning. It is one of the crucial components of the teaching-learning process.

The Assessments Strategies that can be used to encourage interdisciplinary in Mathematics a stated below.

- Students justification of their responses should be an important basis of assessment because it says a lot about students understanding.
- Giving the same task to students will not let a teacher assess its students individual differences plays a crucial role in students learning.
- Their incorrect answers should be observed to understand their thinking.

- To check how well a student understands math's his vocabulary of mathematics should be assessed.
- The differences among these integrative strategies are rooted in the goals of the interdisciplinary curriculum and the purpose of the discipline driving the intergration.

S21. Ans.(c)

Sol. A triangle is a two-dimensional figure which has three sides and the sum of whose angles is 180 degrees.

There are certain conditions for a figure to be triangle as stated below:

- There are three sides of a triangle, which is necessary. Having three sides does not guarantee that the figure is a triangle.
- The sum of lengths of two sides should always be greater than the third side.
- The difference of length of two sides should always be less than the third side.

S22. Ans.(c)

Sol. Mathematical reasoning is a topic of mathematics which deals with truthfulness and falsehood of a statement. A statement is a sentence which is either true or false, but cannot be both at the same time. There are certain terms that are frequently used in mathematical reasoning:

- Inverse: The conditional statement " $\sim p \rightarrow \sim q$ " is called the inverse of the conditional statement " $p \rightarrow q$ ", where $(\sim p)$ and $(\sim q)$ means 'not p' and 'not q' respectively. For example, if 'n is not even, n^2 is not even' is the inverse of 'if n is even, n^2 is even.'
- Converse: The conditional statement " $q \rightarrow p$ " is called the converse of the conditional statement " $p \rightarrow q$ ". Example, 'if n^2 is even, then n is even' is the converse of 'if n is even, then n^2 is even'
- Contrapositive: The statement " $(\sim q) \rightarrow (\sim p)$ " is called the contrapositive of the statement $p \rightarrow q$. For example, 'if n^2 is not even, then n is not even' is contrapositive of 'if n is even, then n^2 is even'

S23. Ans.(c)

Sol. Learning resources are texts, audio-video materials and digital that assist you in the effective transaction of curricular content. Resources that can be used for visually impaired children are:

- Taylor's Abacus: Once the child learn that how to calculate the problems mentally or when the child can do mental calculations i.e. addition, subtraction, division, multiplication, etc. then the child can verify his answer with the use of an Abacus.
- Geoboard: It is a rectangular or square board in shape with nails at equal distance. This can be used for showing geometrical figures and graphs. Rubber bands can be used to show various shapes.
- Tiles: It can also be used as a TLM for showing dimensions of two different rectangles and squares.

S24. Ans.(b)

Sol. Mathematics is the study of numbers, shapes, quantities and patterns. Mathematics is the 'queen of all sciences' and its presence is three in all the subjects. It acts as the basis and structure of other subjects. Some points to remember:

- On the basis of intuition, hypothesis are made in mathematics.
- A mathematics statement can be conditional. For example, a figure cannot be said a 'rectangle' its opposite sides are not parallel and equal and all angles are inclined at 90 degrees.
- Mathematics is not about theorems only. It contains other symbols, statements like axioms and calculation.
- A person with good arithmetic computation does not guarantees that he is good in mathematics. Maybe he can lack in geometry or algebra.

S25. Ans.(b)

Sol. Learning disability refers to the neurological disorder that causes cognitive impairment. Dyslexia, dysgraphia, dyscalculia, etc. are the example of learning disability.

Dyslexia has difficult in reading, writing and spelling, which can hinder the learning of mathematics because students will not be able to read mathematical statements, write word problems, or solve questions. Dyslexia is the most common learning disability which makes learners:

- Confuse with the same shapes and sounds of the alphabet.
- Unable to read, interpret and understand letters and words.
- Bewilder in identifying and relating speech sounds with letters and words.

S26. Ans.(c)

Sol. An open-ended question is a question that cannot be answered with a "yes" or "no" response, or with a static response.

So, among the given options option (c) is an open-ended question.

S27. Ans.(d)

Sol. A teacher uses the following riddle in the class while developing the concept of place value 'I am less than 5 tens and 4 ones'.

The objective of this riddle is to reinforce the concept of base 10 and place value.

S28. Ans.(b)

Sol. The objectives of teaching 'shapes' at primary class are as follow:

- To develop visualization skill
- To enhance spatial reasoning ability

S29. Ans.(b)

Sol. “Geoboard and Abacus” these teaching-learning resources in mathematics can be used for visually challenged students.

S30. Ans.(c)

Sol. While teaching ‘geometrical shapes’ a teacher thinks of planning a trip to historical places. It reflects shapes are an integral part of any architecture and such trips encourage mathematics beyond classroom.

S31. Ans.(b)

Sol. In the given context, option (b) which is “The teacher can use the question to go beyond comparison of numbers and introduce the concept of data handling and sorting of data” is true.

S32. Ans.(d)

Sol. According to National Curriculum Framework 2005, the vision of a mathematics classroom is “Children posing and solving meaningful problems in the classroom”.

S33. Ans.(d)

Sol. Anecdotal Records: It includes written description of child’s progress on a day to day basis and provides observational narrative records.

S34. Ans.(a)

Sol. A class III teacher introduces the multiplication in her class using repeated addition and rectangular arrays. She is introducing multiplication through informal strategies by utilizing the previous knowledge and experiences of students.

S35. Ans.(a)

Sol. One-to-one correspondence

S36. Ans.(a)

Sol. Misconceptions in mathematics can be removed by engaging children with examples and non-examples

S37. Ans.(c)

Sol. Ms. Romi in her mathematics class asks her students to create appropriate situations for following computations:

i. $10 + 2$, ii. 10×2 , iii. $10 - 2$, iv. $10 \div 2$

By using this pedagogy she is trying to help students to develop mathematical statements and problems solving skills.

S38. Ans.(b)

Sol. B and C

S39. Ans.(d)

Sol. B, A, D, C, E

S40. Ans.(c)

Sol. Among the given options option(c) which is “Minimum interaction with other mathematics teachers working in same school or in neighborhood schools.” Is not desirable for the professional development of mathematics teachers.

S41. Ans.(b)

Sol. Among the given options option (b) “Memorising an algorithm” is not true about the five steps of the Mathematisation.

S42. Ans.(c)

Sol. Among the given options option (c) “Number concepts and patterns are building blocks to algebraic thinking” describes that Mathematical concepts from a complex web of connections in which new concepts and previously learnt concepts are inter connected.

S43. Ans.(d)

Sol. Students working in collaboration of a project.

S44. Ans.(a)

Sol. (a) and (c)

S45. Ans.(c)

Sol. For assessing the performance of students in mathematics over a period of time, Mr. Raju has collected exemplary works of his class VIII students which includes assignments, project reports, homework, models, unit tests and class tests etc. The assessment strategy used by Mr. Raju is a portfolio.

S46. Ans.(a)

Sol. The definition "Mathematics is a way to settle in the mind, a habit of reasoning" is given by Locke.

S47. Ans.(c)

Sol. (c), (a), (d), (b)

S48. Ans.(d)

Sol. Among the given options option (d) is correct with respect to student's response.

S49. Ans.(b)

Sol. While teaching in a mathematics class, a teacher gives the statement "Common Divisor of two integers is a number which divides both the given integers." The statement is a definition.

S50. Ans.(c)

Sol. Teacher can teach Symmetry and fraction with the given activity.

