CTET 2019

20 Most Imp Mathematics Pedagogy Questions

1. AS the teachers get very short time to cover the heavy load of the curriculum. Under this circumstance, which type of techniques of teaching mathematics should be applied by teacher?
   A. Oral work   B. Home work
   C. Drill work   D. None of these

2. During the days of IPL a teacher asked his students to keep track of the scores of Indian cricket team and then draw line graphs of each player at the end of each match. The teacher was trying to
   A. Make the task enjoyable
   B. Help students make connections between mathematical concepts and real life
   C. Improve observation skills to the students
   D. To break the monotony of the classroom

3. Giving assignment to the children is a
   A. Maxim of teaching
   B. Principle of teaching
   C. Teaching aids
   D. Technique

4. Which type of technique of teaching mathematics is of permanent nature, so the performance of students can be judge in a better way?
   A. Home work   B. Written work
   C. Oral work   D. None of these

5. A mathematics teacher may employ which type of technique of teaching mathematics for collection of some mathematical data, organization of group discussion and similar activities?
   A. Group work   B. Oral work
   C. Drill work   D. None of these

6. "Self-study" builds up self-confidence in students in tackling the problems of mathematics. In this statements self-study means
   A. Study in group
   B. An individual studies and learn by himself
   C. Study with written work
   D. All of these

7. Sometimes students cannot do their home work at home due to unfavorable atmosphere to study. Which type of technique is very helpful to such students?
   A. Group work
   B. Supervised study
   C. Oral work
   D. Self study

8. Characteristics of a good textbook of Mathematics should be
   A. there are many solved examples and some questions of exercise
   B. there are sufficient solved illustrations and more questions of exercise
   C. all the exercise question are solved
   D. all of the above

9. A student can gain speed in mathematical calculation by
   A. discussion or debate
   B. Oral work
   C. written work
   D. practice

10. Oral examples help to develop which power in pupils?
    A. Thought
    B. Logics
    C. Imaginations
    D. All of these

11. Curriculum means
    A. topic of different concepts
    B. subject matter
    C. activities and experiences in school situation
    D. All of the above

12. Rubrics of assessment to check the concept of shapes in Class II, shall be
    A. can draw shapes accurately, knows the number of sides in each polygon.
    B. can draw shapes accurately and can name them correctly.
    C. can draw the right shape, can sort out the shape, and can tell its number of sides, edges and vertices accurately.
    D. can tell the name of given shape, differentiate between a circle and a polygon, can identify its parallel or nonparallel sides.

13. A child who is able to perform all number operations and is able to explain the concept of fractions is at
    A. operational phase
    B. emergent phase
    C. quantifying phase
    D. partition phase

14. $4/16 - 1/8 = 3/8$
    $6/7 - 2/9 = 4/2$
    The above represents the work of a student. If this error pattern continues, the student's answer to $5/11 - 2/7$ will be
    A. 7/18   B. 3/4
    C. 3/7   D. 2/18

15. "How does a square form a parallelogram? Explain.", The students are asked to write the answer to above question. The objective of the teacher is
    A. Giving an opportunity to students to think and reflect
    B. Making the classroom more interactive
    C. Exposing the students to open-ended questions
    D. Improving the writing skills of the students

16. The term, 'Mathematical tools' refers to
    A. Calculators, rulers, tape measures, protractors, compass, etc.
    B. All types of materials including language, written symbols and meaningful instructions to establish their purpose
    C. Physical material like geo-board and 3D models, cubic road, etc.
    D. Charts based on formulae and concepts, graph papers, dotted sheets, etc.

17. Piaget believed that learning results from social instruction and a mathematics teacher believing in Piaget's theory shall use
    A. lots of manipulative and lab activities in the class
    B. group project and group discussion
    C. differentiated instruction
    D. chalk and talk method

18. **Direction:** *Answer the following question by selecting the correct / **most appropriate** options.*
    Consider this theorem –
    "If n^2 is odd, then n is odd".
    This can be proved by :
    A. Contrapositive proof
    B. Direct proof
    C. Proof by contradiction
    D. Method of disproof

19. **Direction:** *Answer the following question by selecting the correct / **most appropriate** options.*
    Which one of the following statements is **not** true about a Mathematical theorem?
    A. A theorem can be in the form of implication.
    B. A theorem can be proved.
    C. A theorem becomes axiom if proved.
    D. A theorem can be biconditional.

20. Rubrics of assessment for the geometry lesson on points and lines in Class IV shall be
    A. can differentiate between line and line segment, can mark a point, can draw a line segment of given length accurately
    B. can measure the line in cms and inches accurately, can name the line
    C. can measure the line segment in cms and inches accurately and can mark end points of line segment
    D. can differentiate between line, ray and line segment and can define them

ANSWERS

1. Ans. B.
school time is not sufficient to complete everything provided in the curriculum so, under this circumstance, it is not only important but also essential to give homework to students. But it should be based on the content taught in the class. Students may utilize their leisure time for a good cause.

2. Ans. C.
By giving this type of assignment, teacher was trying to give an opportunity to students to collect authentic data and improve observation skills to the students.

3. Ans. D.
Giving assignment to the children is a technique of teaching mathematics. By this technique teacher encourages the students to consult good text-books, related reference book in the school library, such material in always useful in stimulating and directing the independent study of students.

4. Ans. B.
written work in mathematics is of permanent nature so that performance of students can be judge in a better way. It diminishes the chances of mistakes. Written work done by the students can easily be checked by the teacher and essential corrections can be made.

5. Ans. A.
In the group work technique, the larger and unmanageable class or group is divided into

smaller groups according to the abilities and interests of the children. Thus, the unit becomes smaller and so greater attention can be paid to individual students. Therefore a mathematics teacher may employ group work technique of teaching mathematics for a collection of some mathematical data, an organization of group discussion and similar activities.

6. Ans. B.

In the self study, it's mean an individual studies and learn by himself. It enables the students to make use of their knowledge learnt in the class in solving various problems.

7. Ans. B.

supervised study may be individual or collective. The teacher provides proper guidance and direction to students in solving the problems or performing the work assigned to them, therefore supervised study is very helpful to such students.

8. Ans. B.

There must be sufficient solved illustrations and more questions for exercise in a good text book of Mathematics.

9. Ans. D.

A student can gain speed in mathematical calculation by practice.

10. Ans. D.

Oral examples help to develop thought, logics and imaginations in pupils.

11. Ans. D.

In formal education, a curriculum (plural; curricula or curriculums) is the planned interaction of pupils with instructional content, materials resources, and processes for evaluating the attainment of educational objectives. Other definitions combine various elements to describe curriculum as follows. All the learning which is planned and guided by the school, whether it is carried on in groups or individually, inside or outside the school. (john kerr)

The total learning experience provided by a school. It includes the content of courses (the syllabus), the methods employed (strategies) and other aspects, like norms and values, which related to the way the school is organized.

12. Ans. B.

Rubrics of assessment purposes to have a positive impact on students' learning. A scoring rubric is an attempt to communicate expectations of quality around a task. In many cases, scoring rubrics are used to delineate consistent criteria for grading. Therefore, in class II rubrics of assessment to check the concept of shapes shall be the students can only draw and name the of the shapes. Hence, Option B is correct one.

13. Ans. A.

A child who is able to perform all number operations and is able to explain the concept of fractions is at operational phase.

14. Ans. B.

The procedure of calculation can be understand as:

$4/16 - 1/8 = 3/8 \Rightarrow (4 - 1)/ (16 - 8) = 3/8$

$6/7 - 2/9 = 4/2 \Rightarrow (6 - 2)/ (7 - 9) = 4/2$

Therefore the student is subtracting the numerator and denominator separately. If this error pattern continues, the student's answer of $5/11 - 2/7 = (5 - 2) / (11 - 7) = 3/4$

15. Ans. A.

The objective of the teacher for asking that questions is giving an opportunity to students to think and reflect their understandings about the concept.

Hence, option A is correct.

16. Ans. B.

Mathematics is used throughout the world as an essential tool in many fields, including natural science, engineering, medicine, finance and the social sciences. Applied mathematics, the branch of mathematics concerned with application of mathematical knowledge to other fields, inspires and makes use of new mathematical discoveries, which has led to the development of entirely new mathematical disciplines, such as statistics and game theory.

17. Ans. B.

A Mathematics teacher believing in Piaget's theory shall use group project and group discussion. These are the group of individuals with similar interest who gather either formally or informally to bring up ideas, solve problems or give comments.

18. Ans. C.

The above theorem can be proved by contradiction. It involves by assuming that the opposite statement is true, and then shows that such an assumption leads to a contradiction and then that its result is not possible.

19. Ans. A.
In mathematics, a theorem is a statement that has been proved on the basis of previously established statements, such as other theorems, and generally accepted, such as self-theory. A theorem representation has a logical consequence. It can't be in the form of implication.

20. Ans. A.
Rubrics of assessment for the geometry lesson on points and line in Class IV can differentiate between line and line segment can mark a point, can draw a line segment of given length accurately.