TEACHING OF MATHEMATICS

SECTION- A

LONG QUSETIONS

1. Explain the educational values of mathematics by making special reference to its place in life.
2. a) Should mathematics be compulsory or optional subject in our high school classes? Give your own comments.

   b) Write note on – correlation of mathematics with biology.
3. What are the objectives of teaching mathematics in secondary schools? How far are these realized in actual practice?
4. a) Explain the meaning and scope of mathematics.

   b) Write note on correlation of mathematics with physics.
5. In the light of educational values of mathematics, what should be the aims of teaching mathematics at the high school stage?
6. "Mathematics is the science of all sciences and art of all arts." Discuss the statement in the light of the relationship of mathematics with the arts and science subjects of school curriculum.
7. Explain the meaning of mathematics. Discuss the importance of mathematics in everyday life.
8. What should be the place of mathematics in the school curriculum in the present era of calculators and computers?
9. Discuss the relationship of mathematics with physics, biology and geography.
10. Describe the commonly used aids in mathematics. When do they serve their purpose best?
11. a) "Mathematics should be taught on compulsory basis to all pupils as a part of general education during the first 10 years of schooling." Justify this statement.

    b) Write a note on correlation of mathematics with chemistry.

12. Discuss the need and importance of textbooks in mathematics.

SHORT QUSETIONS

1. Place of projective aids in teaching of mathematics.
2. Correlation of mathematics with chemistry.
3. Need of mathematics laboratory
4. Correlation of mathematics with biology/physics/economics.
5. Should mathematics be made optional after class VIII
6. Mathematics laboratory
7. Importance of audio visual aids in teaching of mathematics
8. Value of text book in the teaching of mathematics.
9. Characteristics of good text book in mathematics.
10. Importance of mathematics in everyday life or practical value of mathematics
11. Mathematics library
12. Place of black board in teaching of mathematics.

SECTION B

LONG QUESTIONS

1. "No induction is complete without deduction" comment. In the light of above comments estimate the relative importance of inductive and deductive methods of teaching mathematics.
2. What do you mean by inductive deductive method of teaching mathematics? Give merits and demerits of inductive method?
3. No induction is complete without deduction. Discuss the view point clearly illustrating the merits and demerits of inductive method of teaching of mathematics.
4. Compare and contrast analytic synthesis methods of teaching mathematics. What is the justification of using analytic synthetic combination of mathematics?

5. What is the heuristic method of teaching? Describe its procedure, merits and demerits in teaching of mathematics.

6. What is project method? Describe its procedure, merits, demerits and place in teaching of mathematics.

7. Discuss laboratory method of teaching of mathematics with special reference to its procedure, merits, demerits and practical application.

8. What do you understand by oral work? Explain the value of oral work in teaching of mathematics. How will you make it more effective?

9. What do you understand by drill work? What are the functions of drill work? How can it be made more effective?

10. What is the place and value of home work in the teaching of mathematics? How can it be made effective?

11. Write brief notes on the following:
   a) Suggestions for making homework effective
   b) Encouragement of self study in mathematics.
   c) Functions of drill work.

12. Write short note on following
   a) Value of homework in the teaching of mathematics
   b) Functions of oral work
   c) Functions of drill work

13. What is the place and value of written work in the teaching of mathematics? How can it be made effective?

SHORT QUESTIONS

1. Functions of written work.
2. Functions of oral work.
3. Place of oral work in teaching of mathematics.
4. Merits of heuristic method.
5. Importance of supervised study in mathematics.
6. Limitation of laboratory method.
7. Place and value of homework in teaching of mathematics.
8. Importance of assignment in mathematics.

9. Functions of drill work.
10. Difference between inductive and deductive method.
11. Difference between analytic and synthetic methods of teaching mathematics.
12. Merit/demerits of inductive method / deductive method/ analytic method/ synthetic method / laboratory method/ or project method.

SECTION C

LONG QUESTIONS

1. Discuss the principles of curriculum construction. How far are these followed while constructing mathematics curriculum?
2. Discuss the principles of organizing the curriculum of mathematics. Enumerate the teacher's role in the framing of curriculum.
3. Define the term curriculum. What are the principles underlying the organization of mathematics curriculum in the secondary schools.
4. "Mathematics curriculum at high school stage is not satisfying the present day needs." Explain. What is the teacher's role in framing of curriculum for high school stage?
5. What do you understand by the term evaluation? Describe different kinds of objective type test for evaluation in mathematics.
6. What is wrong with the existing system of examination in mathematics? Give suggestions to improve it.
7. Differentiate between examination and evaluation. Describe the different types of objective type tests for evaluating mathematics.
   a) How will you improve present system of evaluation?

   b) Explain the difference between

- Examination and evaluation
- Objective type and objective based questions

8. Discuss the principles of curriculum construction in mathematics.
9. Mention drawbacks in the existing system of examination in mathematic.
10. Writ merits and demerits of objective type test.
11. Discuss the criteria of an ideal evaluation.

SHORT QUESTIONS

1. Difference between examination and evaluation.
2. Difference between objective type and objective based test.
3. Merits of objective type tests.
4. Limitations of essay type tests.
5. Difference between essay type and objective type tests.
6. Defects in present day teaching of mathematics.
7. Role of teacher in construction of mathematics curriculum
8. Defects in teaching of mathematics in our schools.
9. Types of objective items.

SECTION D

LONG QUESTIONS

1. What is lesson plan? How will you proceed to plan lesson for teaching mathematics? Answer in the light of herbertian steps for the lesson planning.
2. "Objectives, content, methods and evaluation" are the 4 important features of what a lesson plan should contain. discuss

3. What do you mean by lesson planning in mathematics? Explain steps of lesson planning in mathematics.
4. Explain the need and importance of lesson planning. Discuss the principles of lesson planning.
5. Explain the essentials of a good lesson plan. Discuss the determinants of effective teaching.
6. Write a lesson plan on any one of the following topics

a) Sets
b) Surface area of a right cylinder
c) $Sin^2 \emptyset + Cos^2 \emptyset = 1$
d) If from the centre of a circle a straight line b drawn to bisect the chord, then the straight line is perpendicular to the chord.
e) Operations on sets
f) Sum of angles of a triangle is equal to two right angles.
g) Problems based on Pythagoras theorem
h) Area of cross roads
i) $(a-b)^2 = a^2 - 2ab + b^2$
j) T-ratios
k) Area of four walls
l) Simultaneous equations
m) Compound interest
n) Area of a circle
o) Quadratic equation
p) Simple interest
q) $(a+b)^2 = a^2 + 2ab + b^2$
r) Sum of angles of a rectangle is four right angles.
s) If one side of the triangle is produced than the exterior angle o formed is equal to the sum of the opposite interior angles.
t) angle sum property of quadrilateral
u) bar graph
v) In a iangle sum of two sides is greater than the third.
w) $a^2 - b^2 = (a - b)(a + b)$

x) visualizing solid shapes

y) probability

z) Euclid's theorem

SHORT QUESTIONS

1. How should the topic 'area of circle' be introduced?
2. Need of lesson planning in teaching of mathematics.
3. Essentials of a good lesson plan.
4. Importance of lesson planning.
5. How should the topic 'sum of angles of a triangle in two right angles' be introduced.
6. Determinants of effective teaching.
7. Principles of lesson planning.
8. Steps in lesson planning.
9. Meaning of lesson planning in mathematics.