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ES-342

B.Ed. DEGREE EXAMINATION – JANUARY, 2006.

First Year

(For AY-2004-05 batch candidates)

TEACHING OF MATHEMATICS

Time : 3 hours

Maximum marks : 75

PART A — (2 × 15 = 30 marks)

Answer any TWO questions not exceeding 750 words each.

1. Give the meaning of mathematics and discuss its nature with reference to its growth, application, logic and axioms.
2. Explain how a mathematics teacher can introduce effectively and give illustrations for Number Systems.
3. Explain with examples the construction of triangles, given
  - (a) three sides (S.S.S)
  - (b) two sides and included angle (SAS)
  - (c) two angles and one side (ASA).

PART B — (5 × 6 = 30 marks)

Answer any FIVE questions not exceeding 300 words each.

4. Explain factorization of  $ax^2 + bx + c$  by the method of splitting the middle term.
5. Explain how to solve the system of linear equations  $ax + by = c$  and  $dx + ey = f$  through
  - (a) the method of elimination and
  - (b) by using determinants.
6. Explain the importance and effectiveness of problem solving approach in teaching mathematics.
7. What is the significant role of evaluation in teaching-learning process of mathematics?
8. Describe with illustration how 'Relations' are represented as
  - (a) Set of ordered pairs
  - (b) Graph and
  - (c) Venn diagram.

9. Write an algorithm and draw the flow chart for the following problems

(a) Find the nature of the roots of the equation  $ax^2 + bx + c = 0$

(b) Given the cost price and selling price of an article, find the gain/loss.

10. Explain the derivation of the formulae for the area of a parallelogram, trapezium and triangle.

11. Explain how to derive the Trigonometric ratios for the angles  $30^\circ$ ,  $60^\circ$  and  $90^\circ$ .

PART C — (5 × 3 = 15 marks)

Answer ALL questions not exceeding 150 words each.

12. Prove that  $\log a \times b = \log a + \log b$  for any base.
13. Find the L.C.M and H.C.F. of 180 and 270 by the division method.
14. Give a formula for finding Pythagorean triplets and find three Pythagorean triplets using the formula.
15. Factorise  $x^3 + 6x^2 + 11x + 6$  using remainder theorem.
16. Construct a problem that may be solved using set identity  $n(A \cup B) = n(A) + n(B) - n(A \cap B)$  and its solution.