SEEN HOW WELL YOU FARE IN MATHS

As the Board examinations are round the corner, Megha Dua, Maths teacher, The Gurukul, Panchkula presents a mock test paper

GENERAL INSTRUCTIONS
All questions are compulsory.
The descriptive type question is to be answered in about 300 words.
Choice is given in Section B.

SECTION - A

Q1. Determine the position of the centroid of the triangle whose vertices are (1, 2), (3, 4) and (5, 6). [3]
Q2. A and B are points on the x-axis and y-axis respectively, such that area of ΔABO is 4 square units. Find the coordinates of A and B. [3]
Q3. Solve the following system of equations: [3]
2x + 3y = 11
4x - 2y = 1
Q4. In the adjoining figure, AB = AC and ∠BAC = 60°. If AP = 3 cm and BP = 5 cm, find the length of PR. [3]
Q5. A solid cylinder of radius 5 cm and height 10 cm is made into a cone of base radius 5 cm. Find the height of the cone. [3]
Q6. Find the roots of the quadratic equation 2x² - 3x - 5 = 0. [3]

SECTION - B

Q11. What is the probability that a leap year will have 53 Sundays? [3]
Q12. Solve the following system of inequalities graphically: [3]
x + y ≤ 4
2x - y ≥ 2
Q13. A balloon is released from a point on the ground and ascends vertically. The height of the balloon at any instant t is given by h(t) = 100 + 5t². After how many seconds will the balloon be 200 m above the ground? [3]
Q14. Solve for x: [3]
x² - 5x + 6 = 0
Q15. The sum of the first n terms of an AP is given by Sn = 3n² + 5n. Find the 10th term of the AP. [3]
Q16. Fill in the blanks: [3]
(i) The centre of a circle is always equidistant from all points on the circle.
(ii) A triangle is an equilateral triangle, if all its sides are equal.

SECTION - C

Q17. A man can fly a plane for 2 hours with a wind assist of 80 km/h. Find the speed of the plane in still air. [3]
Q18. A parallelogram has a base of 10 cm and a height of 5 cm. Find the area of the parallelogram. [3]
Q19. The monthly income of a family is $2000. If the price of milk is increased by 20%, find the amount by which the family will have to reduce its milk consumption so as to keep its expenditure the same. [3]
Q20. A sphere of radius 10 cm is dropped into a cylindrical vessel of radius 20 cm and height 30 cm. Find the rise in the water level. [3]
Q21. Find the coordinates of the centroid of the triangle whose vertices are (1, 2), (3, 4) and (5, 6). [3]
Q22. The sum of the first n terms of an AP is given by Sn = 3n² + 5n. Find the 10th term of the AP. [3]
Q23. The sum of the first n terms of an AP is given by Sn = 3n² + 5n. Find the 10th term of the AP. [3]
Q24. Find the area of the triangle whose vertices are (1, 2), (3, 4) and (5, 6). [3]

SECTION - D

Q25. If the sum of the angles of a triangle is 180°, find the measure of each angle. [3]
Q26. Solve the following system of equations graphically: [3]
x + y = 5
2x - y = 1
Q27. A rectangle is 20 cm by 30 cm. If the length of the rectangle is increased by 10 cm and the breadth is decreased by 5 cm, find the area of the new rectangle. [3]
Q28. A solid cylinder of radius 5 cm and height 10 cm is made into a cone of base radius 5 cm. Find the height of the cone. [3]
Q29. A sphere of radius 10 cm is dropped into a cylindrical vessel of radius 20 cm and height 30 cm. Find the rise in the water level. [3]
Q30. The sum of the first n terms of an AP is given by Sn = 3n² + 5n. Find the 10th term of the AP. [3]

SECTION - E

Q31. If the sum of the angles of a triangle is 180°, find the measure of each angle. [3]
Q32. Solve the following system of equations graphically: [3]
x + y = 5
2x - y = 1
Q33. A rectangle is 20 cm by 30 cm. If the length of the rectangle is increased by 10 cm and the breadth is decreased by 5 cm, find the area of the new rectangle. [3]
Q34. A solid cylinder of radius 5 cm and height 10 cm is made into a cone of base radius 5 cm. Find the height of the cone. [3]
Q35. A sphere of radius 10 cm is dropped into a cylindrical vessel of radius 20 cm and height 30 cm. Find the rise in the water level. [3]