CLASS X
GUESS PAPER
MATHEMATICS

MM – 90   Time – 3 hrs.

Section – A

Q1. Find the 5th term of the AP 1^2, 5^2, 7^2, ……….

Q2. Find the value of k for which the quadratic equation kx(x – 2) + 6 = 0 has equal roots.

Q3. Find the distance between the points P (cosθ, sinθ) and Q(sinθ, - cosθ).

Q4. Two dices are thrown simultaneously, what is the probability of getting 9 as total.

Section – B

Q5. Solve for x : 4x^2 + 4bx – (a^2 – b^2)

Q6. If the nth term of an AP is given by 3 – 2n. Find the sum of first 15 terms.

Q7. If the point P(x, y) is equidistant from A(5,1) and B(- 1, 5), then prove that 3x = 2y.

Q8. In figure OABC is a quadrant of a circle of radius 7 cm. If OD = 4 cm, find the area of shaded region.

Q9. Two cubes of 5 cm edge are kept together joining edge to edge to form a cuboid. Find the SA of cuboid

Q10. A cylindrical tank has capacity 6160 m^3. Find its depth if its radius is 14 cm. Also find the cost of painting its outer CSA at the rate of Rs. 3 per m^2.

Section – C

Q11. Find the sum of all two-digit number divisible by six.

Q12. The perimeter of a right-angle triangle is 60 cm. Its hypotenuse is 25 cm. Find the area of the ∆le.

Q13. If the 3rd term and 9th term of an AP are 4 and –8 respectively, which term of this AP is zero.

Q14. Prove that the parallelogram circumscribing a circle is a rhombus.

Q15. PQ is a chord of length 8 cm of a circle of radius 5 cm. The tangent at P and Q intersect at T. Find the length of TP.

Q16. Draw a pair of tangents to a circle of radius 5 cm which are inclined to each other at 60$^{°}$.

Q17. Find the area of the of the shaded region where a circular arc of radius 6 cm has been drawn with vertex O of an equilateral triangle OAB of side 12 cm as centre.

Q18. A hemispherical depression is cut out from one face of a cubical wooden block such that the diameter x of the hemisphere is equal to the edge of the cube. Determine the TSA of remaining solid in the term of x

Q19. A solid sphere of radius 6 cm is melted to make a hollow cylinder of uniform thickness. If height and outer radius of the cylinder is 32 cm and 5cm respectively, find its thickness.

Q20. Three unbiased coin are tossed together. Find the probability of getting i) atleast 2 heads ii) atmost 2 heads.

Section – D

Q21. A moto boat whose speed is 24 km/h in still water takes 1 hr more to go 32 km upstream than to return downstream to the same spot. Find the speed of the stream.

Q22. In a school, students decided to plant trees to reduce air pollution. It was decided that the number of trees, that each section of each class will plant, will be double of the class in which they are studying. If there are 1 to 12 classes in school and each class has 2 section, find the total number of trees they planted. Which value is shown in this question?

Q23. The angle of elevation of an aeroplane from a point A on the ground is $60°$. After 15 seconds the angle changes to 30®. If the height of the plane is 1500√3 m, find the speed of the plane in km/hr.

Q24. The angle of elevation of top B of a tower AB from a point X on ground is 60®. At a point Y, vertically 40m above X, the angle of elevation of the top is 45®. Find the height of the tower.

Q25. Prove that opposite sides of a quadrilateral circumscribing a circle subtend supplementary angles at the centre of the circle.

Q26. Draw an isosceles Δle ABC in which BC = 5.5 cm and altitude AL = 3 cm. Then construct another triangle whose sides are 3/4th of corresponding sides of ΔABC.

Q27. In the figure, ΔABC is a right-angle triangle right angled at A. Find the area of shaded area if AB = 6 cm and BC = 10 cm and O is the centre of the incircle of ΔABC.

Q28. Prove that the area of a triangle with vertices (t, t – 2), (t + 2, t + 2) and (t + 3, t) is independent of t.

Q29. Find the ratio in which the point P(x, 2) divide the line segment joining point A(12, 5) and B(4, - 3). And also find x.

Q30. All the black face card of a deck are removed. Find the probability of getting the following cards when picked one randomly: i) face card ii) red card iii) black card iv) king.

Q31. In the figure, PQRS is square lawn with side PQ = 42 m. 2 circular flower beds are there on sides PS and QR with centre O, the intersection of diagonals. Find the total area of 2 beds.