CLASS X
GUESS PAPER
MATHEMATICS(041)

Time : 3 Hrs.   **Maximum Marks-80**

General Instructions :

- All question are compulsory .
- There are in all 30questions divided into four sections A, B, C and D. Section A contains 06 question of 01 mark each; Section B contains 06 question of 02 marks each ; Section C contains 10 questions o 03 marks each and Section D contains 08 questions of 04marks each.

Section A

P1. A card is drawn from a pack of cards numbered 1 to 52.The probability that the number on the card is a perfect square

P2. A Sphere and cube have equal surface areas. Find the ratio of volume of the sphere to the cube .

P3.: Find the Discriminant of $\sqrt{2}x^2 +7x +5\sqrt{2}$. .

P4: If $sinA=\frac{1}{2}$, then find value of $3SinA – 4cos^3 A$.

P5. Solve for x : $4x^2 – 2(a^2 + b^2)x + a^2b^2 = 0$

P6. Use Euclid's division algorithm find the H.C.F. of 135 and 225.

Section B

P7 The median of the following frequency distribution is 24. Find the the missing frequency.

Classes	0- 10	10 - 20	20 - 30	30 - 40	40 - 50
Frequency	5	25	P	18	7

P8. In the given Fig. Sectors of two concentric circles of radii 7 cm and 3.5 cm are given. Find the area of the shaded region.
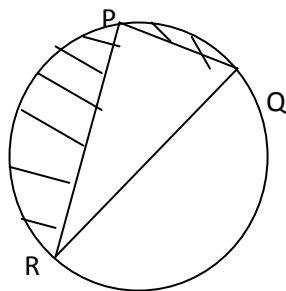
3.5 cm

30^0

…………………… 7 cm…………….
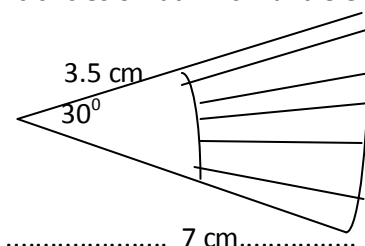
P9. Draw a pair of tangents to a circle of radius 5 cm which are inclined to each other at an angle of 40^0.

P10. In the given Fig. AB, AC and AD are tangents If AB = 5 cm, Find AD.   A

B   D
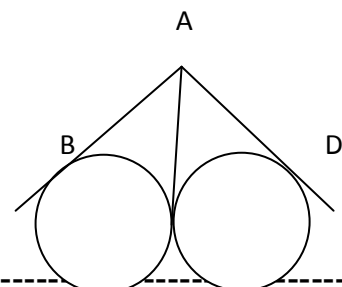
.O   C   .O'

P11. Find the 7th term from the end of the A.P. 7, 10, 13,……………………184.

P12. Find the area of the shaded region in Fig. If PR = 24 cm, PQ = 7 cm and O is the centre of the   circle.

Section C

13. Prove that √3 is an irrational number.

P14. If the points A(6,1), B(8,2), C(9,4) and D(p,3), taken in order, are the vertices of a parallelgram, find the values of p.

P15. Construct a triangle ABC in which BC = 9 cm, ∟B = 60^{0} and AB = 6 cm. Then construct another triangle whose   sides are $^{2}/_{3}$ of the corresponding sides of ΔABC.

P16. Draw the graph of the following pair of linear equations: x + 3y = 6 ; 2x – 3y = 12
  Hence, find the area of the region bounded by the lines x=0, y=0 and 2x – 3y = 12.

P17. The denominator of a fraction exceeds its numerator by 2. If one is added to both numerator and denominator the difference between the new and original fraction is $^{1}/_{21}$. Find the original fraction.

P18. Determine k so that k + 2, 4k – 6 and 3k – 2 are the three consecutive terms of an A.P.

P19. Prove that the ratio of areas of two similar triangles is equal to the ratio of the square of their corresponding sides.

P20. P14. In the given Fig. Quadrilateral ABCD is circumscribed. Find the value of x.
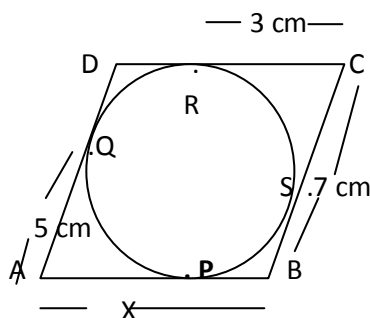
P21. Find other zeros of polynomials 2x^{4} + 7x^{3} – 19x^{2} – 14x + 30 if two of its zeros are √2 and -√ 2.

Section D

P22. If the radii of the ends of a bucket, 45 cm high are 28 cm and 7 cm, determine the capacity and total surface area of the bucket.

P23. The angles of elevation of the top of a tower from two points at a distance of 4 m and 9 m from the base of the tower and in the same straight line with it are complementary. Prove that the height of the tower is 6m.

P24. The 4th term of an A.P. is equal to 3 times the first term and the 7th term exceeds twice the third term by 1. Find the sum of first sixteen terms of the A.P.

P25. Prove that : $(1 + cotA - cosceA)(1 + tanA + secA) = 2$.

P26.. Find the ratio in which he point C(p,1) divides the line segment joining the points A(-4,4) and B(6,-1). Hence find the value of p.

P27. If the points A(2,3), B(4,k) and C(6,-3) a collinear, find the value of k.   )

P28. Find the mean of the following frequency distribution :

Classes	1- 20	20 - 40	40 - 60	60 - 80	80 - 100
Frequency	15	18	21	29	17

P29 The area of an equilateral triangle is 49√3 cm^2. Taking each angular point as centre, circles are drawn with radius equal to half the length of the side of the triangle. Find the area of triangle not included in the circles. (Take √3 = 1.73)

P30. Solve system of equation by the method of cross-multiplication:

ax + by = a – b ; bx – ay = a + b.

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