Multiple Questions & Concept Understanding
Sample paper SA-II

Subject	**:**	**Maths**	**Max. Marks**	**:**	**90**
Class	**:**	**X**	**Time**	**:**	**3 Hrs.**

General Instructions :-

1. All Questions are compulsory.
2. The paper consists of 34 questions divided into four section A, B, C and D.
3. (i) Section A contains 8 MCQs of 1 mark each.
   (ii) Section B contains 6 questions of 2 marks each.
   (iii) Section C contains 10 questions of 3 marks each.
   (iv) Section D contains 10 questions of 4 marks each.

Section - A

Q. 1 If the sum of the roots of the equation $3x^2-(3K-2)x-(K-6)=0$ is equal to the product of its roots, them $K=?$

(a) 1 (b) -1 (c) 0 (d) 2

Q. 2 The number of all 2-digit numbers divisible by 6 is

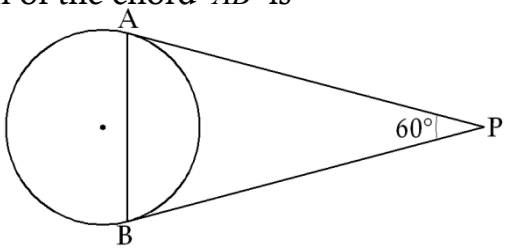
(a) 12 (b) 15 (c) 16 (d) 18

Q. 3 A fair die is thrown once. The probability of getting a composite number is

(a) $\frac{1}{3}$ (b) $\frac{1}{6}$ (c) $\frac{2}{3}$ (d) 0

Q. 4 In the given figure, PA and PB are tangents to a circle s.t. $PA=8cm.$ and $\angle APB=60°$. The length of the chord AB is

(a) 8 cm.
(b) 10 cm.
(c) 12 cm.
(d) 6 cm.



Q. 5 The angle of depression of an object form a 60m high tower in $30°$. The distance of the object from tower is

(a) $20\sqrt{3}$ m (b) $60\sqrt{3}$ m (c) $40\sqrt{3}$ m (d) 120 m

Q. 6 The ratio in which the line segment joining the points $A(-3,2)$ and $B(6,1)$ is divided by the y–axis is

(a) 3:1 (b) 1:3 (c) 2:1 (d) 1:2

Q. 7 In what ration does the point $P(2,-5)$ divide the line segment joining $A(-3,5)$ and $B(4,-9)$?

(a) 3:2 (b) 2:1 (c) 5:2 (d) 5:3

Q. 8 There solid spheres of radii 6cm., 8cm. and 10cm. are melted to form a sphere. The radius of the sphere so formed is
(a) 24cm. (b) 16cm. (c) 14cm. (d) 12cm

Section - B

Q. 9 Find the value of p for which the quadratic equation $x^2 - 2px + 1 = 0$ has no real roots.

Q.10 Find the 10^{th} term from the end of the AP 4, 9, 14, ….., 254.

Q.11 Prove that the tangents drawn at the ends of a diameter of a circle are parallel.

Q.12 The area of the circular base of a cone is $616cm^2$ and its height is $48cm$. Find its whole surface area.

Q.13 Two vertices of a ΔABC are given by $A(6,4)$ and $B(2,2)$ and its centroid is $G(3,4)$. Find the coordinates of its third vertex C.

Q.14 A toy is in the form of a cone mounted on a hemisphere of common base radius 3.5cm. The total height of the toy is 15.5cm. Find the total surface area of the toy.

Section - C

Q.15 Solve :- $a^2b^2x^2 - (4b^4 - 3a^4)x - 12a^2b^2 = 0$

Q.16 If the 8^{th} term of an AP is 31 and its 15 term is 16 more that the 11^{th} term, find the AP.

Q.17 Prove that the parallelogram circumscribing a circle is a rhombus.

Q.18 Show that the points $A(a,a)$, $B(-a,-a)$ and $C\left(-a\sqrt{3},-a\sqrt{3}\right)$.

Q.19 Find the area of a rhombus if its vertices are $A(3,0)$, $B(4,5)$, $C(-1,4)$ and $D(-2,-1)$.

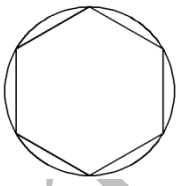
Q.20 A wire bent in the form of a circle of radius 42cm is cut and again bent in the form of a square. Find the ratio of the areas of the regions enclosed by the circle and the square.

Q.21 A metallic sphere of radius 10.5cm. is melted and then recast into smaller cones, each of radius 3.5cm. and height 3cm. How many cones are obtained?

Q.22 A road which is 7m wide surrounds a circular park whose circumference is 352m. Find the area of the road.

Q.23 Find the sum of all two digit odd positive numbers.

Q.24 A round table cover shown in the adjoining figure has six equal designs. If the radius of the cover is 28cm., find the cost of making the designs at the rate of Rs. 0.50 per cm^2. $\left[Use \sqrt{3} = 1.73\right]$



Section - D

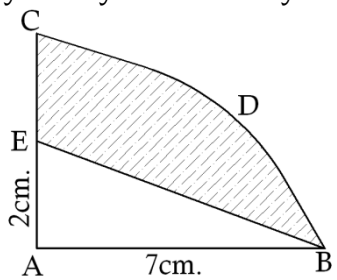
Q.25 A two-digit number is such that the product of its digit is 35. If 18 is added to the number, the digit interchange their places. Find the number.

Q.26 From the top of a 7m high building, the angle of elevation of the top of a cable tower is $60°$ and the angle of depression of its foot is $45°$. Find the height of the tower $\left[\sqrt{3} = 1.73\right]$

Q.27 Pooja works in a bank and she get a monthly salary of Rs. 35000 with annual increment of Rs. 1500. What would be has monthly salary in the 10^{th} year?

Q.28 In the given figure ABCD represents the quadrant of a circle of radius 7cm with centre A. Calculate the area of the shaded region.

$\left[Take\ \pi = \frac{22}{7}\right]$



Q.29 A bag contains 5 red balls and some blue balls. If the probability of drawing a blue ball from the bag is thrice that of a red ball, find the number of blue balls in the bag.

Q.30 In what ratio is the line segment joining the points $(-2,-3)$ and $(3,7)$ divided by the y–axis? also, find the co-ordinates of the point of division.

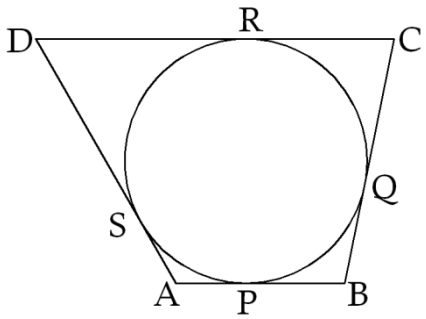
Q.31 Find the value of K for which the points $A(-1,3)$, $B(2,K)$ and $C(5,-1)$ are collinear ?

Q.32 Two dice are thrown at the same time. Find the probability that the sum of two numbers appearing on the top of the dice in more than 9.

Q.33 A circus tent is cylindrical to a height of 3m and conical above it. If its base radius is 52.5m and the slant height of the conical portion is 53m, find the area of canvas needed to make the tent $\left[Take\ \pi = \frac{22}{7}\right]$.

Q.34 A quadrilateral ABCD is drawn to circumscribe a circle, as shown in the given figure. Prove that –

$$AB + CD = AD + BC$$



Submitted By,

SHIVANSHU ATREY

Shivanshu_atrey@hotmail.com

Mob.No.:-9001002213,9772202213.