Sample Paper 3

Section A

1. Choose the correct option :

i) HCF of two coprime numbers is =

$a)$ 1 $b)$ 0 $c)$ 2 $d)$ 3

ii) In a quadratic polynomial $p(x) = ax^2 + bx + c$, the product of zeroes =

$a)$ $\frac{b}{a}$ $b)$ $-\frac{b}{a}$ $c)$ $\frac{c}{a}$ $d)$ $-\frac{c}{a}$

iii) How many zeroes of a quadratic polynomial have?

$a)$ 0 $b)$ 1 $c)$ 3 $d)$ 2

iv) Find value of x: $2x + 3y = 5$ ਅਤੇ $x + 3y = 7$

$a)$ -2 $b)$ 2 $c)$ 3 $d)$ 2

v) A quadratic equation has real roots if

$a)$ $D > 0$ $b)$ $D = 0$ $c)$ $D \geq 0$ $d)$ $D < 0$

vi) 5th term of AP 5, 11, 17, ...

$a)$ 23 $b)$ 29 $c)$ 27 $d)$ 25

vii) Which of the following is not a criteria of similarity of triangles?

$a)$ SSS $b)$ SAS $c)$ AAA $d)$ RHS

viii) $5sec^2\theta - 5tan^2\theta =$

$a)$ 5 $b)$ -5 $c)$ 1 $d)$ -1

ix) If $sinA = \frac{\sqrt{3}}{2}$ then $A =$

$a)$ 30° $b)$ 45° $c)$ 60° $d)$ 90°

x) How many tangents can be drawn from an external point?

$a)$ 0 $b)$ 2 $c)$ 1 $d)$ 3

xi) The region of a circle enclosed between chord and corresponding arc:

$a)$ Segment $b)$ Chord $c)$ Sector $d)$ circumference

xii) The ratio of volume of a cylinder and cone of same radius and height:

$a)\ 1:3$ $b)\ 2:1$ $c)\ 3:1$ $d)\ 1:2$

xiii) Find the height of the given cone:

$a)$ 13 cm $b)$ 12 cm $c)$ 14 cm $d)$12.5 cm

xiv) Find median of 5, 8, 4, 3, 9, 7, 10

$a)\ 3$ $b)\ 6$ $c)\ 7$ $d)\ 5$

xv) $P(\text{not } E) =$

$a)\ P(E)$ $b)\ 1 - P(E)$ $c)\ P(E) - 1$ $d)\ P(E) + 1$

xvi) The prob of coming a head in one toss of a coin:

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

2. Choose True/False:

i) The sum of two irrational numbers is always an irrational number.

ii) The equations $4x - 3y = 5$ and $8x - 6y = 5$ are inconsistent.

iii) $x + \frac{1}{x} = 3$ is a quadratic equation.

iv) Any point on $x -$ axis is of form $(0, x)$.

v) $\sin(A + B) = sinA + sinB$

vi) A line which touches circle at one point is called a tangent.

vii) Mode $= L + \left(\frac{f_1 - f_0}{2f_1 - f_0 - f_2}\right) \times h$

3. Fill in the blanks:

i) The equations $a_1x + b_1y + c_1 = 0,\ a_2x + b_2y + c_2 = 0$ have a unique solution if……

ii) In an $AP,\ a_n - a_{n-1} = \cdots \ldots \ldots \ldots \ldots \ldots$

iii) In $\Delta ABC,\ DE||BC$ then $\frac{AD}{AB} = \frac{\ldots\ldots}{BC}$

iv) The mid point of the line segment joining $(5, -3)$ and $(-1, 7)$ is……

v) Area of sector $= \frac{1}{2} \times l \times \ldots \ldots \ldots$

vi) Lateral surface area of hemisphere = ……

vii) The probability of a certain event is……

Section B

4. Check whether 6^n can have end digit 0 for a natural number n.

5. Form a quadratic polynomial whose sum of zeroes is 0 and product of zeroes is -3.

6. Find the area of a quadrant of a circle whose circumference is 22cm.

7. In a box, there are 3 blue, 2 white and 4 red balls. One ball is drawn at random then find the probability that drawn ball is of red colour.

Section C

8. Check whether the equation $3x^2 - 5x - 2 = 0$ has real roots or not, if so then find the roots. **OR**

In a right triangle, height is 7cm less than its base. If the length of hypotenuse is 13cm then find both sides.

9. Find the sum of first 51 terms of AP whose second and third terms are 14 and 18 respectively. **OR**

How many terms are there in AP 7,13,19, ... ,205?

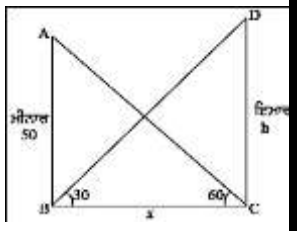
10. Check whether the points $(4,3), (5,1)$ and $(1,9)$ are collinear or not.

11. If $15\cot A = 8$ then find $\sin A$ and $\sec A$. **OR**

Prove that $\dfrac{\sin\theta - 2\sin^3\theta}{2\cos^3\theta - \cos\theta} = \tan\theta$

12. From the base of a tower, the angle of elevation of top of a building is $30°$ and the angle of elevation from base of the building to the top of tower is $60°$. IF the height of tower is 50m then find

i) height of building ii) distance between them.



13. A container is in the form of a hollow hemisphere surmounted by a hollow cylinder. If the diameter of hemisphere is 14cm and total height of container is 13cm then find (i) height of cylinder

(ii) inner curved surface area of container.

Section D

14. Check whether the equations $5x - 2y = -1, 2x + 3y = 11$ are consistent or not. If so then solve them **OR**

If 1 is added to the numerator and 2 is added to the denominator of a fraction, it becomes $\frac{5}{7}$. If 1 is subtracted from numerator then it becomes $\frac{3}{5}$. Find the fraction.

15. In a triangle, If a line parallel to one side of a triangle then it divides other two sides in same ratio. **OR**

Two tangents TP and TQ are drawn from an external point T of a circle with centre O then prove that $\angle$ PTQ $= 2\angle$ OPQ

16. Find f if the mean is 18.

Expenditure	11-13	13-15	15-17	17-19	19-21	21-23	23-25
Number	7	6	9	13	f	5	4

OR

Find the median of the following:

Class Interval	100-120	120-140	140-160	160-180	180-200	200-220
F	6	9	12	18	15	10