Sample Paper 4

Section A

1. Choose the correct option:

i) Which of the following is an irrational number?

$a)$ $(2-\sqrt{3})+\sqrt{3}$ $b)$ $(4-\sqrt{3})(4+\sqrt{3})$

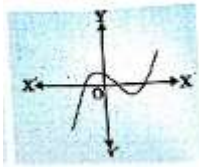
$c)$ $\sqrt{16}$ $d)$ $\pi-\frac{22}{7}$

ii) In a polynomial $p(x)=ax^2+bx+c$, The relation of $p(x)$ with $-\frac{b}{a}$ is:

$a)$ Product of zeroes $b)$ sum of zeroes

$c)$ Subtraction of zeroes $d)$ division of zeroes

iii) Find the number of zeroes of $y=p(x)$ in the given figure:



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

iv) Find y: $4x-5y=8$ and $-4x+3y=4$

$a)$ -4 $b)$ 6 $c)$ -6 $d)$ 4

v) The nature of roots of $2x^2-x-3=0$:

$a)$ Distinct real $b)$ Equal real

$c)$ No real roots $d)$ None

vi) In an AP, a_n(general term) =

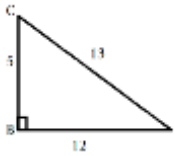
$a)$ $a-(n-1)d$ $b)$ $a+(n+1)d$

$c)$ $a+(n-1)d$ $d)$ $a+nd$

vii) In ΔABC, $DE||BC$ then which of the following is not true?

$a)$ $\frac{AB}{AD}=\frac{AC}{EC}$ $b)$ $\frac{AD}{AB}=\frac{AE}{AC}$ $c)$ $\frac{AD}{DB}=\frac{AE}{EC}$ $d)$ $\frac{AD}{DB}=\frac{DE}{BC}$

viii) In given figure, $cotC=$

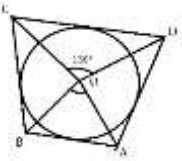


$a)$ $\frac{12}{5}$ $b)$ $\frac{5}{12}$ $c)$ $\frac{12}{13}$ $d)$ $\frac{13}{5}$

ix) $\frac{2tan30°}{1+tan^2 30°}=$

$a)$ $sin60°$ $b)$ $cos60°$ $c)$ $tan60°$ $d)$ $sin30°$

x) In given figure, $\angle COD = 130°$ then $\angle AOB =$



$a)\ 65°$ $b)\ 55°$ $c)\ 50°$ $d)\ 60°$

xi) Area of sector of circle =

$a)\ \frac{1}{2} \times l \times r$ $b)\ l \times r$ $c) \frac{1}{2} \times l \times r^2$ $d)\ l \times r^2$

xii) A cuboid is formed by joining two cubes, each of edge 6cm. Find the volume of cuboid.

$a)\ 360\ \text{cm}^3$ $b)\ 216\ \text{cm}^3$ $c)\ 1296\ \text{cm}^3$ $d)\ 432\ \text{cm}^3$

xiii) In the given figure, lateral surface area of the solid =

$a)\ \pi r(h + r)$ $b)\ \pi r(h + 2r)$

$c)\ 2\pi r(h + r)$ $d)\ 2\pi r(h + 2r)$

xiv) Find the model class interval

CLass	0-10	10-20	20-30	30-40	40-50
f	6	9	8	12	5

$a)\ 20-30$ $b)\ 30-40$ $c)\ 40-50$ $d)\ 10-20$

xv) The sum of all probabilities of all outcomes of an event is...

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

xvi) If the prob of winning a match is 40% Then the prob of losing the match is

$a)\ \frac{2}{5}$ $b)\ \frac{1}{4}$ $c)\ \frac{3}{5}$ $d)\ \frac{1}{5}$

2. Choose True/False:

i) Every composite number can be expressed as the product of prime numbers.

ii) If the linear equations have infinitely many solutions then $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$

iii) In a quadratic equation $ax^2 + bx + c = 0,\ D = b^2 - 4ac$

iv) The distance of point $(3,4)$ from $x-$ axis is 3 units.

v) As θ increase the value of $cos\theta$ also increases.

vi) The common point of a circle and tangent is called point of contact.

vii) In Median $= l + \left(\frac{\frac{N}{2} - Cf}{f}\right) \times h$, '$l$' is the lower limit of median class interval.

3. Fill in the blanks:

i) The equations $a_1x + b_1y + c_1 = 0, a_2x + b_2y + c_2 = 0$ have many solutions if .....

ii) 5^{th} term of AP $5, 8, 11, \ldots\ldots\ldots\ldots\ldots$ is....

iii) If $\Delta QPR \sim \Delta DEF$ then $\angle E =$ .....

iv) If the point B divides AC in 2:1 then AB:AC=.....

v) The region between chord of a circle and its corresponding arc is called.....

vi) Total surface area of cylinder is .....

vii) The probability of getting an even number in a single toss of die is.....

Section B

4. Prove that $3 + 2\sqrt{5}$ is an irrational number.

5. Form a quadratic polynomial whose sum of zeroes is $\sqrt{5}$ and product of zeroes is 2.

6. Find the area of minor segment of a circle of radius 10cm and central angle is a right angle. [$\pi = 3.14$,]

7. 12 defective pens are accidently mixed with 132 good pens. One pen is drawn at random and find the prob that selected pen is a good one.

Section C

8. Find two consecutive positive numbers whose sum of squares is 365.

9. In an AP, nth term is $4n + 3$ then find the sum of first 15 terms.
OR how many terms are there in AP $3, 7, 11, \ldots, 215$?

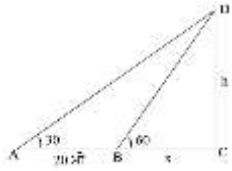
10. Check the vertices $A(-1, -2), B(1,0), C(-1,2)$ and $D(-3,0)$ Are of which quadrilateral ? **OR** Find the coordinates of the point which divides the line segment joining $(-1,7)$ and $(4, -3)$ in $2:3$.

11. If $\tan(A+B) = \sqrt{3}$ and $\tan(A-B) = \frac{1}{\sqrt{3}}$ then find A and B.

OR Prove that $\frac{\sin A}{1+\cos A} + \frac{1+\cos A}{\sin A} = 2\operatorname{cosec} A$

12. A tower stands vertically on the bank of a river. The angle of elevation from a point opposite to the bank of river is $60°$ and the angle of elevation from another point which is 20 m away from this point is $30°$. Find

(i) height of tower (ii) width of river.



13. A cone of same height and base is removed from a solid cylinder of height 2.4cm and diameter 1.4cm. Find the surface area of the remaining solid.

Section D

14. Check whether the equations $2x - 5y = 9, 5x + 3y = 7$ are consistent or not. If yes then solve. **OR**

A cricket coach buys 7 bats and 6 balls for ₹3800 and also 3 bats and 5 balls od same type for ₹1750. Find the cost of 1 bat and 1 ball.

15. Prove Basic Proportionality Theorem **OR**

Prove that the tangents drawn from an external point are equal.

16. Find the arithmetic mean.

Class interva	15 – 20	20 – 25	25 – 30	30– 35	35- 40	40- 45	45- 50	50- 55
F	3	8	9	10	3	0	0	2

OR Find the mode of the following:

Class	0- 20	20- 40	40- 60	60- 80	80- 100	100- 120	120- 140
F	10	35	42	61	52	48	23