

SECTION – I

I. Answer all the following questions

7×1=7

Each question carries 1 mark

1. Is $7 \times 5 \times 3 \times 2 + 3$ a composite number? Justify your answer?
2. $A = \{x: x^2 = 16 \text{ and } 2x + 3 = 11\}$ is not an empty set why?
3. α, β are the zeros of the polynomial $2x^2 + 4x + 1$, then find the value of $\frac{\alpha + \beta}{\alpha\beta}$?
4. Find $2x + 3y - 7 = 0$, $3x - 2y + 8 = 0$ lines are intersecting lines are parallel lines (or) coincide lines?
5. Write the nature of roots of the quadratic equation $2x^2 - 6x + 3 = 0$
6. Find the centroid of the triangle whose vertices are $(3, -5)$, $(-7, 4)$ and $(10, -2)$?
7. Can $x+2$, $x+4$, and $x+9$ be in A.P justify your answer?

SECTION – II

I. Answer all the following questions

6 × 2 = 12

Each question carries 2 mark

1. Find the HCF and LCM of 12 and is by the prime factorization method?
2. If $A = \{x: x \text{ is a natural number } x < 20\}$; $B = \{x; x \text{ is an even natural number } x < 20\}$ $X = \{x: x \text{ is an odd natural number } x < 20\}$ find $A - B$ and $B - C$?
3. Check whether 3 and -2 are the zeros of the polynomial $P(x)$ when $P(x) = x^2 - x - 6$?
4. Find two numbers whose sum is 27 and product is 182?
5. If seven time of 7th term of an A.P is equal to the 11 times of 11th term of it, then find the 18th term of that A.P?
6. The points $(3, 2)$ $(-2, 8)$ and $(0, 4)$ are three points in a plane show that these points are colinear?

SECTION – 3

1. In this section, every question has internal choice
2. Answer any one alternative
3. Each question carries 4 marks.

14. Prove that $\sqrt{2} + \sqrt{3}$ is irrational

(OR)

A is a set of factors of 30 and B is a set of factor of 36 then find the sets $A \cup B$ by using venn-diagram and comment of the answer

15. Draw the graph for the following pair of linear equations in two variables and find their solution from the graph $3x + 4y = 4$ and $6x + 8y = 4$

(OR)

Draw the graph for the polynomial $P(x) = x^2 - 3x - 4$ and find the zeros from graph?

16. If the geometric progressions 162, 54, 18 and $\frac{2}{81}, \frac{2}{27}, \frac{2}{9}$ have their nth term equal.

Find the value of 'n'?

(OR)

Verify that 1, -1 and -3 are the zeroes of the cubic polynomial $x^3 + 3x^2 - x - 3$ and check the relationship between zeroes and the coefficients?

17. Find the co-ordinates of the points of trisection of the line segment joining the points A(2, -2) and B(-7, 4)

OR

Find the area of a triangle whose vertices are (1, -1), (-4, 6) and (-3, -5)?

SECTION – IV

Time : 30 minutes

Marks : 5

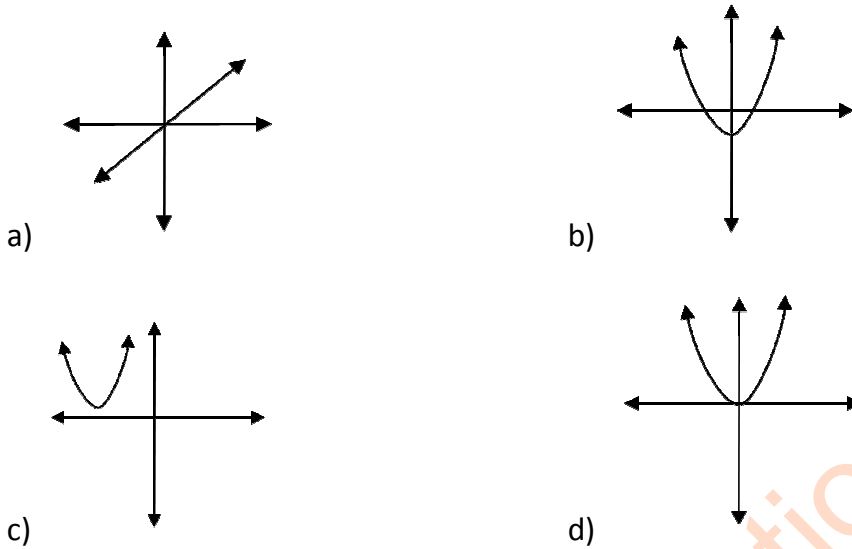
Instructions:

- i) Write the answers to the questions in this Part-B on the question paper itself and attach it the answer book of Part-A
- ii) Answer all the questions
- iii) Each question carries $\frac{1}{2}$ mark
- iv) Answers are to be written in question paper only
- v) Marks will not be awarded in any case of over writing, rewriting or erased answer.

Write the CAPITAL LETTERS (A, B, C, D) showing the correct answer for the following questions in the brackets provided against them?

- $10 \times \frac{1}{2} = 5$
1. Common difference in $\frac{1}{2}, 1, \frac{3}{2}, \dots$ ()
- a) $\frac{-1}{2}$ b) $\frac{1}{2}$ c) 2 d) -2
2. The equation $x - 4y = 5$ has ()
- a) no solution b) unique solution
- c) two solutions d) infinitely many solutions

3. the graph represented by if $b^2 - 4ac > 0$ is ()



4. Which set is infinite ()

- a) The set of whole number < 10 b) The set of prime number < 10
c) The set of integers < 10 d) The set of factors of 10

5. The number of elements of a set is 4, then the no of subsets ()

- a) 16 b) 32 c) 4 d) None

6. $y = mx^2$ passing through ___ quadrants ()

- a) I and II b) II and III c) III and IV d) IV and I

7. Nature of roots of $2x^2 - 3x + 5 = 0$ ()

- a) Real and equal b) Real and distinct
c) Not real d) Complex numbers

8. Which of the following is not correct ()

- a) $\log_{10} 1 = 0$ b) $\log_{10} 10 = 1$ c) $\log_{10} 0 = 1$ d) $\log_a x = \log_x a$

9. If $2x - 5y = 17$ and $4x - 10y = 8$ then these equation are ()

- a) Consistent b) Inconsistent c) Equal d) None

10. The equation of Y-axis is _____ ()

- a) $x = 0$ b) $y = 0$ c) $x = y$ d) None

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