Nishant eAcademy
CBSE Sample Paper Class 11 Mathematics 2020-21

Subject: Mathematics Class: 11 Maximum Marks: 80 Duration: 3 hours

Section A: Objective Type Questions (20 marks)

1. Choose the correct answer from the given options: a) If a matrix has m rows and n columns, then it is of _____ order. i) (n, m) ii) (m, n) iii) (m + n) iv) (n - m)

b) If A and B are two sets, then the union of A and B is denoted by _____. i) A U B ii) A ∩ B iii) A - B iv) B - A

2. Fill in the blanks: a) The value of $\cos^2\theta + \sin^2\theta$ is _____. b) If a quadratic equation has no real roots, then the discriminant is _____.

Section B: Short Answer Type Questions (40 marks)

3. Solve the following equations: a) $3x + 5 = 14$ b) $\sqrt{2x + 1} = 5$

4. Find the derivative of the following functions: a) $f(x) = 3x^2 + 5x - 2$ b) $g(x) = \sin(x) + \cos(x)$

Section C: Long Answer Type Questions (20 marks)

5. Solve the following system of equations: $2x + 3y = 7$ $4x - 5y = 3$

6. Prove the following trigonometric identity: $\sec\theta - \cos\theta = \tan\theta * \sec\theta$

7. Find the value of 'k' for which the matrix is singular: | 2 3 | | 4 k |

Section D: Value-Based Questions (20 marks)

8. A shopkeeper donates 10% of his total earnings to an orphanage. If he earned Rs. 50,000, how much money did he donate to the orphanage?

9. The area of a rectangle is 60 square units. If the length is increased by 3 units and the breadth is decreased by 2 units, the area remains the same. Find the length and breadth of the rectangle.