



# ATUL CLASSES

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Test / Exam Name: 11th Straight Line Mcq

Standard: 11th Science

Subject: Mathematics

Student Name: \_\_\_\_\_

Section: \_\_\_\_\_

Roll No.: \_\_\_\_\_

Questions: 60 Time: 01:00 hh:mm Negative Marks: 0 Marks: 60

## Instructions

1. 60 MCQ of 11th Straight line

**Q1.** Choose the correct answer.

**1 Mark**

The equations of the lines which pass through the point (3, -2) and are inclined at  $60^\circ$  to the line  $\sqrt{3}x + y = 1$  is:

**A**  $\sqrt{3}x + y - \sqrt{3} = 0, \sqrt{3}x - y - \sqrt{3} = 0$

**A**  $\sqrt{3}x + y - \sqrt{3} = 0, \sqrt{3}x - y - \sqrt{3} = 0$

**A**  $\sqrt{3}x + y - \sqrt{3} = 0, \sqrt{3}x - y - \sqrt{3} = 0$

**B**  $\sqrt{3}x + y + \sqrt{3} = 0, \sqrt{3}x - y + \sqrt{3} = 0$

**B**  $\sqrt{3}x + y + \sqrt{3} = 0, \sqrt{3}x - y + \sqrt{3} = 0$

**B**  $\sqrt{3}x + y + \sqrt{3} = 0, \sqrt{3}x - y + \sqrt{3} = 0$

**C**  $x + \sqrt{3}y - \sqrt{3} = 0, x - \sqrt{3}y - \sqrt{3} = 0$

**C**  $x + \sqrt{3}y - \sqrt{3} = 0, x - \sqrt{3}y - \sqrt{3} = 0$

**C**  $x + \sqrt{3}y - \sqrt{3} = 0, x - \sqrt{3}y - \sqrt{3} = 0$

**D** None of these.

**D** None of these.

**D** None of these.

**Q2.** Find slope of line if inclination made by the line is  $60^\circ$ .

**1 Mark**

**A**  $\frac{1}{2}$

**A**  $\frac{1}{2}$

**A**  $\frac{1}{2}$

**B**  $\frac{1}{\sqrt{3}}$

**B**  $\frac{1}{\sqrt{3}}$

**B**  $\frac{1}{\sqrt{3}}$

**C**  $\sqrt{3}$

**C**  $\sqrt{3}$

**C**  $\sqrt{3}$

**D** 1

**D** 1

**D** 1

**Q3.** The equation of a straight line that passes through the point (3, 4) and perpendicular to the line  $3x + 2y + 5 = 0$  is:

**1 Mark**

**A**  $2x - 3y + 6 = 0$

**A**  $2x - 3y + 6 = 0$

**A**  $2x - 3y + 6 = 0$

**B**  $2x + 3y + 6 = 0$

**B**  $2x + 3y + 6 = 0$

**B**  $2x + 3y + 6 = 0$

**C**  $2x - 3y - 6 = 0$

**C**  $2x - 3y - 6 = 0$

**C**  $2x - 3y - 6 = 0$

**D**  $2x + 3y - 6 = 0$

**D**  $2x + 3y - 6 = 0$

**D**  $2x + 3y - 6 = 0$

**Q4.** A point equidistant from the line  $4x + 3y + 10 = 0$ ,  $5x - 12y + 26 = 0$  and  $7x + 24y - 50 = 0$  is:

**1 Mark**

**A** (1, -1)

**A** (1, -1)

**A** (1, -1)

**B** (1, 1)

**B** (1, 1)

**B** (1, 1)

**C** (0, 0)

**C** (0, 0)

**C** (0, 0)

**D** (0, 1)

**D** (0, 1)

**D** (0, 1)

**Q5.** If p be the length of the perpendicular from the origin on the straight line  $x + 2by = 2p$ , then what is the value of b:

**1 Mark**

**A**  $\frac{1}{p}$

**A**  $\frac{1}{p}$

**A**  $\frac{1}{p}$

**B** p

**B** p

**B** p

**C**  $\frac{1}{2}$

**C**  $\frac{1}{2}$

**C**  $\frac{1}{2}$

**D**  $\frac{3}{2}$

**D**  $\frac{3}{2}$

**D**  $\frac{3}{2}$

**Q6.** Equation of horizontal line below x-axis at 5 units from x-axis is:

**1 Mark**

**A**  $x = 5$

**A**  $x = 5$

**A**  $x = 5$

**B**  $x = -5$

**B**  $x = -5$

**B**  $x = -5$

**C**  $y = 5$

**C**  $y = 5$

**C**  $y = 5$

**D**  $y = -5$

**D**  $y = -5$

**D**  $y = -5$

**Q7.** The locus of the point of intersection of lines  $x \cos a + y \sin a = a$  and  $x \sin a - y \cos a = b$  (a is a variable):

**1 Mark**

**A**  $2(x^2 + y^2) = a^2 + b^2$

**A**  $2(x^2 + y^2) = a^2 + b^2$

**A**  $2(x^2 + y^2) = a^2 + b^2$

**B**  $x^2 - y^2 = a^2 - b^2$

**B**  $x^2 - y^2 = a^2 - b^2$

**B**  $x^2 - y^2 = a^2 - b^2$

**C**  $x^2 + y^2 = a^2 + b^2$

**C**  $x^2 + y^2 = a^2 + b^2$

**C**  $x^2 + y^2 = a^2 + b^2$

**D** None of these

**D** None of these

**D** None of these

**Q8.** The distance between the orthocentre and circumcentre of the triangle with vertices (1, 2), (2, 1) and

**1 Mark**

$\left(\frac{3+\sqrt{3}}{2}, \frac{3+\sqrt{3}}{2}\right)$  is:

**A** 0

**A** 0

**A** 0

**B**  $\sqrt{2}$

B  $\sqrt{2}$

B  $\sqrt{2}$

C  $3 + \sqrt{3}$

C  $3 + \sqrt{3}$

C  $3 + \sqrt{3}$

D none of these.

D none of these.

D none of these.

**Q9. Directions:** In the following questions, the Assertion (A) and Reason(s) (R) have been put forward. Read both the statements carefully and choose the correct alternative from the following: **1 Mark**

**Assertion (A)** A point P (h, k) lies on the straight line  $x + y + 1 = 0$  and is at a distance 5 units from the origin. If k is negative, then h is equal to - 3.

**Reason (R)** The distance formula is  $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

A A is true, R is true; R is a correct explanation of A.

A A is true, R is true; R is a correct explanation of A.

A A is true, R is true; R is a correct explanation of A.

B A is true, R is true; R is not a correct explanation of A.

B A is true, R is true; R is not a correct explanation of A.

B A is true, R is true; R is not a correct explanation of A.

C A is true; R is false

C A is true; R is false

C A is true; R is false

D A is false; R is true.

D A is false; R is true.

D A is false; R is true.

**Q10.** Find slope of line joining (1, 2) and (4, 11): **1 Mark**

A  $\frac{1}{3}$

A  $\frac{1}{3}$

A  $\frac{1}{3}$

B 3

B 3

B 3

C 9

C 9

C 9

D  $\frac{1}{9}$

D  $\frac{1}{9}$

D  $\frac{1}{9}$

**Q11.** The equation of a line that passes through the points (1, 5) and (2, 3) is: **1 Mark**

A  $2x + y - 7 = 0$

A  $2x + y - 7 = 0$

A  $2x + y - 7 = 0$

B  $2x - y - 7 = 0$

B  $2x - y - 7 = 0$

B  $2x - y - 7 = 0$

C  $x + 2y - 7 = 0$

C  $x + 2y - 7 = 0$

C  $x + 2y - 7 = 0$

D  $2x + y + 7 = 0$

D  $2x + y + 7 = 0$

D  $2x + y + 7 = 0$

**Q12.** The condition for the points (x, y), (-2, 2) and (3, 1) to be collinear is: **1 Mark**

A  $x + 5y = 8$

A  $x + 5y = 8$

A  $x + 5y = 8$

B  $x + 5y = 6$

B  $x + 5y = 6$

B  $x + 5y = 6$

C  $5x + y = 8$

C  $5x + y = 8$

C  $5x + y = 8$

D  $5x + y = 6$

D  $5x + y = 6$

D  $5x + y = 6$

**Q13.** The number of real values of  $\lambda$  for which the lines  $x - 2y + 3 = 0$ ,  $\lambda x + 3y + 1 = 0$  and  $4x - \lambda y + 2 = 0$  are concurrent is: **1 Mark**

A 0

A 0

A 0

B 1

B 1

B 1

C 2

C 2

C 2

D Infinite.

D Infinite.

D Infinite.

**Q14.** Area of the triangle formed by the points  $((a + 3)(a + 4), a + 3)$ ,  $((a + 2)(a + 3), (a + 2))$  and  $((a + 1)(a + 2), (a + 1))$  is: **1 Mark**

A  $25a^2$

A  $25a^2$

A  $25a^2$

B  $5a^2$

B  $5a^2$

B  $5a^2$

C  $24a^2$

C  $24a^2$

C  $24a^2$

D None of these.

D None of these.

D None of these.

**Q15.** Equation of vertical line to the left of y-axis at 5 units from y-axis is: **1 Mark**

A  $x = 5$

A  $x = 5$

A  $x = 5$

B  $x = -5$

B  $x = -5$

B  $x = -5$

C  $y = 5$

C  $y = 5$

C  $y = 5$

D  $y = -5$

D  $y = -5$

D  $y = -5$

**Q16.** If  $p_1$  and  $p_2$  are the lengths of the perpendiculars from the origin upon the lines  $x \sec \theta + y \operatorname{cosec} \theta = a$  and  $x \cos \theta - y \sin \theta = a \cos 2\theta$  respectively, then: **1 Mark**

A  $4p_1^2 + p_2^2 = a^2$

A  $4p_1^2 + p_2^2 = a^2$

A  $4p_1^2 + p_2^2 = a^2$

B  $p_1^2 + 4p_2^2 = a^2$

B  $p_1^2 + 4p_2^2 = a^2$

B  $p_1^2 + 4p_2^2 = a^2$

C  $p_1^2 + 4p_2^2 = a^2$

C  $p_1^2 + 4p_2^2 = a^2$

C  $p_1^2 + 4p_2^2 = a^2$

D None of these.

D None of these.

D None of these.

**Q17.** The tangent of angle between the lines whose intercepts on the axes are a, -b and b, -a respectively, is: **1 Mark**

**A**  $\frac{a^2-b^2}{ab}$

**A**  $\frac{a^2-b^2}{ab}$

**B**  $\frac{b^2-a^2}{ab}$

**C**  $\frac{b^2-a^2}{2ab}$

**C**  $\frac{b^2-a^2}{2ab}$

**D** None of these

**A**  $\frac{a^2-b^2}{ab}$

**B**  $\frac{b^2-a^2}{ab}$

**B**  $\frac{b^2-a^2}{ab}$

**C**  $\frac{b^2-a^2}{2ab}$

**D** None of these

**D** None of these

**Q18.** A line passes through (2, 2) and is perpendicular to the line  $3x + y = 3$ . Its y-intercept is:

**1 Mark**

**A**  $\frac{1}{3}$

**A**  $\frac{1}{3}$

**A**  $\frac{1}{3}$

**B**  $\frac{2}{3}$

**B**  $\frac{2}{3}$

**B**  $\frac{2}{3}$

**C** 1

**C** 1

**C** 1

**D**  $\frac{4}{3}$

**D**  $\frac{4}{3}$

**D**  $\frac{4}{3}$

**Q19.** What is the distance between (1, 3) and (5, 6)?

**1 Mark**

**A** 3 units.

**A** 3 units.

**B** 4 units.

**B** 4 units.

**C** 5 units.

**C** 5 units.

**D** 25 units.

**D** 25 units.

**Q20.** The points (-a, -b), (0, 0), (a, b) and (a<sup>2</sup>, ab) are:

**1 Mark**

**A** Vertices of a square

**B** Vertices of a parallelogram

**C** Collinear

**D** Vertices of a rectangle

**Q21.** Choose the correct answer.

**1 Mark**

The equations of the lines which pass through the point (3, -2) and are inclined at 60° to the line  $\sqrt{3}x + y = 1$  is:

**A**  $\sqrt{3}x + y - \sqrt{3} = 0, \sqrt{3}x - y - \sqrt{3} = 0$

**A**  $\sqrt{3}x + y - \sqrt{3} = 0, \sqrt{3}x - y - \sqrt{3} = 0$

**A**  $\sqrt{3}x + y - \sqrt{3} = 0, \sqrt{3}x - y - \sqrt{3} = 0$

**B**  $\sqrt{3}x + y + \sqrt{3} = 0, \sqrt{3}x - y + \sqrt{3} = 0$

**B**  $\sqrt{3}x + y + \sqrt{3} = 0, \sqrt{3}x - y + \sqrt{3} = 0$

**B**  $\sqrt{3}x + y + \sqrt{3} = 0, \sqrt{3}x - y + \sqrt{3} = 0$

**C**  $x + \sqrt{3}y - \sqrt{3} = 0, x - \sqrt{3}y - \sqrt{3} = 0$

**C**  $x + \sqrt{3}y - \sqrt{3} = 0, x - \sqrt{3}y - \sqrt{3} = 0$

**C**  $x + \sqrt{3}y - \sqrt{3} = 0, x - \sqrt{3}y - \sqrt{3} = 0$

**D** None of these.

**D** None of these.

**D** None of these.

**Q22.** Find slope of line if inclination made by the line is 60°.

**1 Mark**

**A**  $\frac{1}{2}$

**A**  $\frac{1}{2}$

**A**  $\frac{1}{2}$

**B**  $\frac{1}{\sqrt{3}}$

**B**  $\frac{1}{\sqrt{3}}$

**B**  $\frac{1}{\sqrt{3}}$

**C**  $\sqrt{3}$

**C**  $\sqrt{3}$

**C**  $\sqrt{3}$

**D** 1

**D** 1

**D** 1

**Q23.** The equation of a straight line that passes through the point (3, 4) and perpendicular to the line  $3x + 2y + 5 = 0$  is:

**1 Mark**

**A**  $2x - 3y + 6 = 0$

**A**  $2x - 3y + 6 = 0$

**A**  $2x - 3y + 6 = 0$

**B**  $2x + 3y + 6 = 0$

**B**  $2x + 3y + 6 = 0$

**B**  $2x + 3y + 6 = 0$

**C**  $2x - 3y - 6 = 0$

**C**  $2x - 3y - 6 = 0$

**C**  $2x - 3y - 6 = 0$

**D**  $2x + 3y - 6 = 0$

**D**  $2x + 3y - 6 = 0$

**D**  $2x + 3y - 6 = 0$

**Q24.** A point equidistant from the line  $4x + 3y + 10 = 0$ ,  $5x - 12y + 26 = 0$  and  $7x + 24y - 50 = 0$  is:

**1 Mark**

**A** (1, -1)

**A** (1, -1)

**A** (1, -1)

**B** (1, 1)

**B** (1, 1)

**B** (1, 1)

**C** (0, 0)

**C** (0, 0)

**C** (0, 0)

**D** (0, 1)

**D** (0, 1)

**D** (0, 1)

**Q25.** If p be the length of the perpendicular from the origin on the straight line  $x + 2by = 2p$ , then what is the value of b:

**1 Mark**

**A**  $\frac{1}{p}$

**A**  $\frac{1}{p}$

**A**  $\frac{1}{p}$

**B** p

**B** p

**B** p

**C**  $\frac{1}{2}$

**C**  $\frac{1}{2}$

**C**  $\frac{1}{2}$

**D**  $\frac{3}{2}$

**D**  $\frac{3}{2}$

**D**  $\frac{3}{2}$

**Q26.** Equation of horizontal line below x-axis at 5 units from x-axis is:

**1 Mark**

**A**  $x = 5$

**A**  $x = 5$

**A**  $x = 5$

**B**  $x = -5$

**B**  $x = -5$

**B**  $x = -5$

**C**  $y = 5$

**C**  $y = 5$

**C**  $y = 5$

**D**  $y = -5$

**D**  $y = -5$

**D**  $y = -5$

**Q27.** The locus of the point of intersection of lines  $x\cos a + y\sin a = a$  and  $x\sin a - y\cos a = b$  (a is a variable):

**1 Mark**

**A**  $2(x^2 + y^2) = a^2 + b^2$

**A**  $2(x^2 + y^2) = a^2 + b^2$

**B**  $x^2 - y^2 = a^2 - b^2$

**C**  $x^2 + y^2 = a^2 + b^2$

**C**  $x^2 + y^2 = a^2 + b^2$

**D** None of these

**A**  $2(x^2 + y^2) = a^2 + b^2$

**B**  $x^2 - y^2 = a^2 - b^2$

**B**  $x^2 - y^2 = a^2 - b^2$

**C**  $x^2 + y^2 = a^2 + b^2$

**D** None of these

**D** None of these

**Q28.** The distance between the orthocentre and circumcentre of the triangle with vertices (1, 2), (2, 1) and

**1 Mark**

$\left(\frac{3+\sqrt{3}}{2}, \frac{3+\sqrt{3}}{2}\right)$  is:

**A** 0

**A** 0

**A** 0

**B**  $\sqrt{2}$

**B**  $\sqrt{2}$

**B**  $\sqrt{2}$

**C**  $3 + \sqrt{3}$

**C**  $3 + \sqrt{3}$

**C**  $3 + \sqrt{3}$

**D** none of these.

**D** none of these.

**D** none of these.

**Q29.Directions:** In the following questions, the Assertions (A) and Reason(s) (R) have been put forward. Read both the statements carefully and choose the correct alternative from the following:

**1 Mark**

**Assertion (A)** A point P (h, k) lies on the straight line  $x + y + 1 = 0$  and is at a distance 5 units from the origin. If k is negative, then h is equal to - 3.

**Reason (R)** The distance formula is  $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

**A** A is true, R is true; R is a correct explanation of A.

**A** A is true, R is true; R is a correct explanation of A.

**A** A is true, R is true; R is a correct explanation of A.

**B** A is true, R is true; R is not a correct explanation of A.

**B** A is true, R is true; R is not a correct explanation of A.

**B** A is true, R is true; R is not a correct explanation of A.

**C** A is true; R is false

**C** A is true; R is false

**C** A is true; R is false

**D** A is false; R is true.

**D** A is false; R is true.

**D** A is false; R is true.

**Q30.** Find slope of line joining (1, 2) and (4, 11):

**1 Mark**

**A**  $\frac{1}{3}$

**A**  $\frac{1}{3}$

**A**  $\frac{1}{3}$

**B** 3

**B** 3

**B** 3

**C** 9

**C** 9

**C** 9

**D**  $\frac{1}{9}$

**D**  $\frac{1}{9}$

**D**  $\frac{1}{9}$

**Q31.** The equation of a line that passes through the points (1, 5) and (2, 3) is:

**1 Mark**

**A**  $2x + y - 7 = 0$

**A**  $2x + y - 7 = 0$

**A**  $2x + y - 7 = 0$

**B**  $2x - y - 7 = 0$

**B**  $2x - y - 7 = 0$

**B**  $2x - y - 7 = 0$

**C**  $x + 2y - 7 = 0$

**C**  $x + 2y - 7 = 0$

**C**  $x + 2y - 7 = 0$

**D**  $2x + y + 7 = 0$

**D**  $2x + y + 7 = 0$

**D**  $2x + y + 7 = 0$

**Q32.** The condition for the points (x, y), (-2, 2) and (3, 1) to be collinear is:

**1 Mark**

**A**  $x + 5y = 8$

**A**  $x + 5y = 8$

**A**  $x + 5y = 8$

**B**  $x + 5y = 6$

**B**  $x + 5y = 6$

**B**  $x + 5y = 6$

**C**  $5x + y = 8$

**C**  $5x + y = 8$

**C**  $5x + y = 8$

**D**  $5x + y = 6$

**D**  $5x + y = 6$

**D**  $5x + y = 6$

**Q33.** The number of real values of  $\lambda$  for which the lines  $x - 2y + 3 = 0$ ,  $\lambda x + 3y + 1 = 0$  and  $4x - \lambda y + 2 = 0$  are concurrent is:

**1 Mark**

**A** 0

**A** 0

**A** 0

**B** 1

**B** 1

**B** 1

**C** 2

**C** 2

**C** 2

**D** Infinite.

**D** Infinite.

**D** Infinite.

**Q34.** Area of the triangle formed by the points  $((a + 3)(a + 4), a + 3)$ ,  $((a + 2)(a + 3), (a + 2))$  and  $((a + 1)(a + 2), (a + 1))$  is:

**1 Mark**

**A**  $25a^2$

**A**  $25a^2$

**A**  $25a^2$

**B**  $5a^2$

**B**  $5a^2$

**B**  $5a^2$

**C**  $24a^2$

**C**  $24a^2$

**C**  $24a^2$

**D** None of these.

**D** None of these.

**D** None of these.

**Q35.** Equation of vertical line to the left of y-axis at 5 units from y-axis is:

**1 Mark**

**A**  $x = 5$

**A**  $x = 5$

**A**  $x = 5$

**B**  $x = -5$

**B**  $x = -5$

**B**  $x = -5$

**C**  $y = 5$

**C**  $y = 5$

**C**  $y = 5$

**D**  $y = -5$

**D**  $y = -5$

**D**  $y = -5$

**Q36** If  $p_1$  and  $p_2$  are the lengths of the perpendiculars from the origin upon the lines  $x \sec \theta + y \operatorname{cosec} \theta = a$  and  $x \cos \theta - y \sin \theta = a \cos 2\theta$  respectively, then:

1 Mark

- A**  $4p_1^2 + p_2^2 = a^2$   
**A**  $4p_1^2 + p_2^2 = a^2$   
**B**  $p_1^2 + 4p_2^2 = a^2$   
**C**  $p_1^2 + 4p_2^2 = a^2$   
**C**  $p_1^2 + 4p_2^2 = a^2$   
**D** None of these.

- A**  $4p_1^2 + p_2^2 = a^2$   
**B**  $p_1^2 + 4p_2^2 = a^2$   
**B**  $p_1^2 + 4p_2^2 = a^2$   
**C**  $p_1^2 + 4p_2^2 = a^2$   
**D** None of these.  
**D** None of these.

**Q37** The tangent of angle between the lines whose intercepts on the axes are  $a, -b$  and  $b, -a$  respectively, is:

1 Mark

- A**  $\frac{a^2 - b^2}{ab}$   
**A**  $\frac{a^2 - b^2}{ab}$   
**B**  $\frac{b^2 - a^2}{ab}$   
**C**  $\frac{b^2 - a^2}{2ab}$   
**C**  $\frac{b^2 - a^2}{2ab}$   
**D** None of these

- A**  $\frac{a^2 - b^2}{ab}$   
**B**  $\frac{b^2 - a^2}{ab}$   
**B**  $\frac{b^2 - a^2}{ab}$   
**C**  $\frac{b^2 - a^2}{2ab}$   
**D** None of these  
**D** None of these

**Q38** A line passes through  $(2, 2)$  and is perpendicular to the line  $3x + y = 3$ . Its y-intercept is:

1 Mark

- A**  $\frac{1}{3}$   
**B**  $\frac{2}{3}$   
**C** 1  
**A**  $\frac{1}{3}$   
**B**  $\frac{2}{3}$   
**D**  $\frac{4}{3}$

- A**  $\frac{1}{3}$   
**B**  $\frac{2}{3}$   
**C** 1  
**D**  $\frac{4}{3}$   
**B**  $\frac{2}{3}$   
**C** 1  
**D**  $\frac{4}{3}$

**Q39** Choose the correct answer.

1 Mark

The equations of the lines which pass through the point  $(3, -2)$  and are inclined at  $60^\circ$  to the line  $\sqrt{3}x + y = 1$  is:

- A**  $\sqrt{3}x + y - \sqrt{3} = 0, \sqrt{3}x - y - \sqrt{3} = 0$   
**A**  $\sqrt{3}x + y - \sqrt{3} = 0, \sqrt{3}x - y - \sqrt{3} = 0$   
**B**  $\sqrt{3}x + y + \sqrt{3} = 0, \sqrt{3}x - y + \sqrt{3} = 0$   
**C**  $x + \sqrt{3}y - \sqrt{3} = 0, x - \sqrt{3}y - \sqrt{3} = 0$   
**C**  $x + \sqrt{3}y - \sqrt{3} = 0, x - \sqrt{3}y - \sqrt{3} = 0$   
**D** None of these.

- A**  $\sqrt{3}x + y - \sqrt{3} = 0, \sqrt{3}x - y - \sqrt{3} = 0$   
**B**  $\sqrt{3}x + y + \sqrt{3} = 0, \sqrt{3}x - y + \sqrt{3} = 0$   
**B**  $\sqrt{3}x + y + \sqrt{3} = 0, \sqrt{3}x - y + \sqrt{3} = 0$   
**C**  $x + \sqrt{3}y - \sqrt{3} = 0, x - \sqrt{3}y - \sqrt{3} = 0$   
**D** None of these.  
**D** None of these.

**Q40** Find slope of line if inclination made by the line is  $60^\circ$ .

1 Mark

- A**  $\frac{1}{2}$   
**B**  $\frac{1}{\sqrt{3}}$   
**C**  $\sqrt{3}$   
**A**  $\frac{1}{2}$   
**B**  $\frac{1}{\sqrt{3}}$   
**D** 1

- A**  $\frac{1}{2}$   
**C**  $\sqrt{3}$   
**D** 1  
**B**  $\frac{1}{\sqrt{3}}$   
**C**  $\sqrt{3}$   
**D** 1

**Q41** The equation of a straight line that passes through the point  $(3, 4)$  and perpendicular to the line  $3x + 2y + 5 = 0$  is:

1 Mark

- A**  $2x - 3y + 6 = 0$   
**B**  $2x + 3y + 6 = 0$   
**C**  $2x - 3y - 6 = 0$   
**A**  $2x - 3y + 6 = 0$   
**B**  $2x + 3y + 6 = 0$   
**C**  $2x - 3y - 6 = 0$   
**D**  $2x + 3y - 6 = 0$   
**B**  $2x + 3y + 6 = 0$   
**C**  $2x - 3y - 6 = 0$   
**D**  $2x + 3y - 6 = 0$

**Q42** A point equidistant from the line  $4x + 3y + 10 = 0$ ,  $5x - 12y + 26 = 0$  and  $7x + 24y - 50 = 0$  is:

1 Mark

- A**  $(1, -1)$   
**B**  $(1, 1)$   
**C**  $(0, 0)$   
**A**  $(1, -1)$   
**B**  $(1, 1)$   
**C**  $(0, 0)$   
**D**  $(0, 1)$   
**A**  $(1, -1)$   
**C**  $(0, 0)$   
**D**  $(0, 1)$   
**B**  $(1, 1)$   
**C**  $(0, 0)$   
**D**  $(0, 1)$

**Q43** If  $p$  be the length of the perpendicular from the origin on the straight line  $x + 2by = 2p$ , then what is the value of  $b$ :

1 Mark

- A**  $\frac{1}{p}$   
**B**  $p$   
**C**  $\frac{1}{2}$   
**A**  $\frac{1}{p}$   
**B**  $p$   
**C**  $\frac{1}{2}$   
**D**  $\frac{3}{2}$   
**A**  $\frac{1}{p}$   
**C**  $\frac{1}{2}$   
**D**  $\frac{3}{2}$   
**B**  $p$   
**C**  $\frac{1}{2}$   
**D**  $\frac{3}{2}$

**Q44** Equation of horizontal line below x-axis at 5 units from x-axis is:

1 Mark

- A  $x = 5$   
 B  $x = -5$   
 C  $y = 5$

- A  $x = 5$   
 B  $x = -5$   
 D  $y = -5$

- A  $x = 5$   
 C  $y = 5$   
 D  $y = -5$

- B  $x = -5$   
 C  $y = 5$   
 D  $y = -5$

**Q45.** The locus of the point of intersection of lines  $x\cos a + y\sin a = a$  and  $x\sin a - y\cos a = b$  ( $a$  is a variable):

1 Mark

- A  $2(x^2 + y^2) = a^2 + b^2$   
 A  $2(x^2 + y^2) = a^2 + b^2$   
 B  $x^2 - y^2 = a^2 - b^2$   
 C  $x^2 + y^2 = a^2 + b^2$   
 C  $x^2 + y^2 = a^2 + b^2$   
 D None of these

- A  $2(x^2 + y^2) = a^2 + b^2$   
 B  $x^2 - y^2 = a^2 - b^2$   
 B  $x^2 - y^2 = a^2 - b^2$   
 C  $x^2 + y^2 = a^2 + b^2$   
 D None of these  
 D None of these

**Q46.** The distance between the orthocentre and circumcentre of the triangle with vertices  $(1, 2)$ ,  $(2, 1)$  and

1 Mark

$\left(\frac{3+\sqrt{3}}{2}, \frac{3+\sqrt{3}}{2}\right)$  is:

- A 0  
 B  $\sqrt{2}$   
 C  $3 + \sqrt{3}$

- A 0  
 B  $\sqrt{2}$   
 D none of these.

- A 0  
 C  $3 + \sqrt{3}$   
 D none of these.

- B  $\sqrt{2}$   
 C  $3 + \sqrt{3}$   
 D none of these.

**Q47. Directions:** In the following questions, the Assertions (A) and Reason(s) (R) have been put forward. Read both the statements carefully and choose the correct alternative from the following:

1 Mark

**Assertion (A)** A point P ( $h, k$ ) lies on the straight line  $x + y + 1 = 0$  and is at a distance 5 units from the origin. If  $k$  is negative, then  $h$  is equal to  $-3$ .

**Reason (R)** The distance formula is  $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

A A is true, R is true; R is a correct explanation of A.

A A is true, R is true; R is a correct explanation of A.

A A is true, R is true; R is a correct explanation of A.

B A is true, R is true; R is not a correct explanation of A.

B A is true, R is true; R is not a correct explanation of A.

B A is true, R is true; R is not a correct explanation of A.

C A is true; R is false

C A is true; R is false

C A is true; R is false

D A is false; R is true.

D A is false; R is true.

D A is false; R is true.

**Q48.** Find slope of line joining  $(1, 2)$  and  $(4, 11)$ :

1 Mark

A  $\frac{1}{3}$

A  $\frac{1}{3}$

A  $\frac{1}{3}$

B 3

B 3

B 3

C 9

C 9

C 9

D  $\frac{1}{9}$

D  $\frac{1}{9}$

D  $\frac{1}{9}$

**Q49.** The equation of a line that passes through the points  $(1, 5)$  and  $(2, 3)$  is:

1 Mark

A  $2x + y - 7 = 0$

A  $2x + y - 7 = 0$

A  $2x + y - 7 = 0$

B  $2x - y - 7 = 0$

B  $2x - y - 7 = 0$

B  $2x - y - 7 = 0$

C  $x + 2y - 7 = 0$

C  $x + 2y - 7 = 0$

C  $x + 2y - 7 = 0$

D  $2x + y + 7 = 0$

D  $2x + y + 7 = 0$

D  $2x + y + 7 = 0$

**Q50.** The condition for the points  $(x, y)$ ,  $(-2, 2)$  and  $(3, 1)$  to be collinear is:

1 Mark

A  $x + 5y = 8$

A  $x + 5y = 8$

A  $x + 5y = 8$

B  $x + 5y = 6$

B  $x + 5y = 6$

B  $x + 5y = 6$

C  $5x + y = 8$

C  $5x + y = 8$

C  $5x + y = 8$

D  $5x + y = 6$

D  $5x + y = 6$

D  $5x + y = 6$

**Q51.** The number of real values of  $\lambda$  for which the lines  $x - 2y + 3 = 0$ ,  $\lambda x + 3y + 1 = 0$  and  $4x - \lambda y + 2 = 0$  are concurrent is:

1 Mark

A 0

A 0

A 0

B 1

B 1

B 1

C 2

C 2

C 2

D Infinite.

D Infinite.

D Infinite.

**Q52.** Area of the triangle formed by the points  $((a + 3)(a + 4), a + 3)$ ,  $((a + 2)(a + 3), (a + 2))$  and  $((a + 1)(a + 2), (a + 1))$  is:

1 Mark

A  $25a^2$

A  $25a^2$

A  $25a^2$

B  $5a^2$

B  $5a^2$

B  $5a^2$

C  $24a^2$

C  $24a^2$

C  $24a^2$

D None of these.

D None of these.

D None of these.

**Q53.** Equation of vertical line to the left of y-axis at 5 units from y-axis is:

**1 Mark**

- A**  $x = 5$   
**B**  $x = -5$   
**C**  $y = 5$

- A**  $x = 5$   
**B**  $x = -5$   
**D**  $y = -5$

- A**  $x = 5$   
**C**  $y = 5$   
**D**  $y = -5$

- B**  $x = -5$   
**C**  $y = 5$   
**D**  $y = -5$

**Q54.** If  $p_1$  and  $p_2$  are the lengths of the perpendiculars from the origin upon the lines  $x \sec \theta + y \operatorname{cosec} \theta = a$  and  $x \cos \theta - y \sin \theta = a \cos 2\theta$  respectively, then:

**1 Mark**

- A**  $4p_1^2 + p_2^2 = a^2$   
**A**  $4p_1^2 + p_2^2 = a^2$   
**B**  $p_1^2 + 4p_2^2 = a^2$   
**C**  $p_1^2 + 4p_2^2 = a^2$   
**C**  $p_1^2 + 4p_2^2 = a^2$   
**D** None of these.

- A**  $4p_1^2 + p_2^2 = a^2$   
**B**  $p_1^2 + 4p_2^2 = a^2$   
**B**  $p_1^2 + 4p_2^2 = a^2$   
**C**  $p_1^2 + 4p_2^2 = a^2$   
**D** None of these.  
**D** None of these.

**Q55.** The tangent of angle between the lines whose intercepts on the axes are  $a, -b$  and  $b, -a$  respectively, is:

**1 Mark**

- A**  $\frac{a^2 - b^2}{ab}$   
**A**  $\frac{a^2 - b^2}{ab}$   
**B**  $\frac{b^2 - a^2}{ab}$   
**C**  $\frac{b^2 - a^2}{2ab}$   
**C**  $\frac{b^2 - a^2}{2ab}$   
**D** None of these

- A**  $\frac{a^2 - b^2}{ab}$   
**B**  $\frac{b^2 - a^2}{ab}$   
**B**  $\frac{b^2 - a^2}{ab}$   
**C**  $\frac{b^2 - a^2}{2ab}$   
**D** None of these  
**D** None of these

**Q56.** A line passes through  $(2, 2)$  and is perpendicular to the line  $3x + y = 3$ . Its y-intercept is:

**1 Mark**

- A**  $\frac{1}{3}$   
**B**  $\frac{2}{3}$   
**C** 1

- A**  $\frac{1}{3}$   
**B**  $\frac{2}{3}$   
**D**  $\frac{4}{3}$

- A**  $\frac{1}{3}$   
**C** 1  
**D**  $\frac{4}{3}$

- B**  $\frac{2}{3}$   
**C** 1  
**D**  $\frac{4}{3}$

**Q57.** What is the distance between  $(1, 3)$  and  $(5, 6)$ ?

**1 Mark**

- A** 3 units.  
**C** 5 units.

- A** 3 units.  
**C** 5 units.

- B** 4 units.  
**D** 25 units.

- B** 4 units.  
**D** 25 units.

**Q58.** The acute angle between the medians drawn from the acute angles of a right angled isosceles triangle is:

**1 Mark**

- A**  $\cos^{-1}\left(\frac{2}{3}\right)$   
**C**  $\cos^{-1}\left(\frac{4}{5}\right)$

- B**  $\cos^{-1}\left(\frac{3}{4}\right)$   
**D**  $\cos^{-1}\left(\frac{5}{6}\right)$

**Q59.** Find the distance between the following pair of points.  $(5, 7)$  and the origin:

**1 Mark**

- A**  $\sqrt{74}$

- B**  $\sqrt{64}$

- C**  $\sqrt{34}$

- D** None of these

**Q60.** Equation of the line passing through  $(0, 0)$  and slope  $m$  is:

**1 Mark**

- A**  $y = mx + c$

- B**  $x = my + c$

- C**  $y = mx$

- D**  $x = my$