STRAIGHT LINES

SECTION A(1 mark)

1. The points (2, 3), (8, 11), (5, 7) form
   a) a right-angled triangle   b) isosceles triangle
   c) equilateral triangle   d) they form a set of collinear points

2. The points (2, -2), (8, 4), (5, 7), (-1, 1) form exactly
   a) parallelogram   b) rhombus   c) rectangle   d) square

3. The base vertices of a right-angled Isosceles triangle are (2, 4) and (4, 2) then its third vertex is
   a) (1, 1) or (2, 2)   b) (2, 2) or (4, 4)   c) (1, 1) or (3, 3)   d) (2, 2) or (3, 3)

4. The third vertex of the equilateral triangle whose two vertices are (2, 4) and (2, 6)
   a) $(\sqrt{3}, 5)$ b) $(2\sqrt{3}, 5)$ c) $(2+\sqrt{3}, 5)$ d) (2, 5)

5. The midpoints of the sides BC, CA, AB of a triangle ABC are (7, 2), (-1, 4), (3, -6). Then A is
   a) (-5, -4)   b) (5, 4)   c) (-5, 4)   d) (5, -4)

6. The area of the quadrilateral formed by the points (1, 1), (7, -3), (12, 2), (7, 21) is
   a) 132   b) 66   c) 33   d) None

7. A(2, 3), B(5, 7), C(3, -3), D(-13, 9) are four points. Then
   a) AB is parallel to CD   b) AB $\perp$ CD
   c) AB, CD are both parallel to the x-axis   d) None

8. The points (2, 3), (8, 11), (5, 7) form
   a) a right-angled triangle   b) isosceles triangle

   c) equilateral triangle   d) a set of collinear points

9. The equation of the line which is parallel to 5x+12y+1=0 and 5x+12y+7=0 and lying midway between them is
   a) 5x+12y+3=0   b) 5x+12y-4=0   c) 5x+12y+4=0   d) None

10. Find the slope of a line perpendicular to the line through points (2, 5) and (-3, 6).
    a) -2   b) 5   3) 3   4) None

FILL IN THE BLANKS

1. Y–axis divides the line segment joining (2,-3), (5,7) in the ratio--------------

2. Three vertices of a parallelogram (3, 6), (2, 9), (-1, 6). Then the fourth vertex is ---------------------------

3. Two vertices of a triangle are (3, 1), (-4, 5) and the centroid is the origin. Then the third vertex is---------------------

4. The mid points of the sides of a triangle ABC are (-2, 3), (-7, 5), (3, -5). Then the area of the triangle ABC is ----------------------

5. The equation of the line passing through the point (2, 3) and parallel to the y-axis is---------------------------

6. The equation of the line which is perpendicular to the line 2x+y+3 = 0 and makes an intercept 7/3 units on the x-axis

VSA

1. What point on *y*-axis in equidistant from (-5, -2) and (3, 2)?
2. Find the equation of a line that cuts off equal intercepts on the coordinate axis and passes through (2, 3).
3. Find the value of K, if $2x + 3y + 4 + k(6x - y + 12) = 0$ is perpendicular to the line $7x + 5y - 4 = 0$.
4. Slope of a line joining the points (7, 3) and (K, 2) is -4. Find the value of K.
5. Find the distance between the lines 3x+4y=9 and 6x+8y=15.

SECTION B(2 marks)

1. Find the equation of a line passing through the point (-4, -5) and perpendicular to the line joining the points (1, 2) and (5, 6).
2. Find the equation of the line passing through the mid-point of the line-segment joining the points (1, 3) and (2, -1) and parallel to the line $3x - y = 7$.
3. Find the equation of the line passing through the intersection of the lines $2x - 3y + 1 = 0$ and $x + y - 2 = 0$ and parallel to *y*-axis.
4. For what value of *x*, the area of the triangle formed by (5, -1) (*x*, 4) and (6, 3) is 5.5 square units
5. If the lines $3x + y - 2 = 0$, $px + 2y - 3 = 0$ and $2x - y - 3 = 0$ are concurrent. Find the value of *p*.

SECTION C(4 marks)

1. What are the points on *x*-axis whose perpendicular distance from $4x + 3y = 12$ is 4?
2. Find the equation of the median of the triangle whose vertices are (2, 0) (0, 2) and (4, 6).
3. Find the equation of the bisector of angle A of the triangle whose vertices are A(4, 3) B(0, 0) and C(2, 3).
4. Find the equation of the line through the point (2, 3) such that the segment of the line intercepted between the axes is bisected at this point.
5. Find the equation of the line through the point (1, 3) such that the intercept on the *y*-axis exceeds on the intercept on the *x*-axis by 4.
6. Find the equation of the line such that the area of the triangle formed by the line and the coordinate axis in I quadrant is 30 and the length of the hypotenuse is 13.
7. Find the equation of the line passing through the intersection of the lines $3x + y - 9 = 0$ and $4x + 3y - 7 = 0$ and perpendicular to $5x - 4y + 1 = 0$.
8. Find the equation of the line passing through the intersection of the lines $2x + 3y - 2 = 0$ and $x - 2y + 1 = 0$ and having *x*-intercept equal to 3.
9. Find the equation of the line passing through the intersection of the lines $3x - 4y + 1 = 0$ and $5x + y - 1 = 0$ cutting off equal intercepts on the coordinate axis.
10. Find the distance of the point (2,3) from the line 2x-3y+9=0 measured along the line x-y+1=0

SECTION D(6 marks)

1. Find the image of the point (-8, 12) with respect to the line mirror $4x + 7y + 13 = 0$.
2. Find the coordinates of the orthocenter with vertices (1, 2) (2, 3) and (4, 3).
3. Find the point on the line $x + 2y = 3$ whose distance from $3x + 4y - 2 = 0$ is 2.
4. Find the foot of the perpendicular drawn from the point (1, 2) to the line $3x + y + 1 = 0$.
5. Show that the perpendicular drawn from the point (4, 1) on the line joining (6, 5) and (2, -1) divides it in the ratio 8:5.
6. Find the equation of the line which pass through (4, 5) and make equal angles with the lines $5x - 12y + 6 = 0$ and $3x - 4y + 7 = 0$.
7. A straight line passing through the point (-1, 2) and its distance from the origin is one unit. Find its equation.
8. Find the equation of the line passing through the point (1,3) and making an angle of $45°$ with the line x-3y+4=0
9. Find the equation of the perpendicular drawn from the point (-2, 3) to the line x-4y+7=0. Also find the coordinates of the foot of the perpendicular.
10. Find the equation of a line passing through $(a\cos^3\theta, a\sin^3\theta)$ and perpendicular to the line x $\sec\theta$ + y cosec θ =a .
11. Find the equation of the two straight lines through (7,9) and making an angle of 60 ^{0} with the line x-$\sqrt{3}$y-2$\sqrt{3}$ = 0

ANSWER KEY-STRAIGHT LINES

Section A-MCQ		Section B (2marks)	
1.	b)Isosceles triangle	1.	x-3y+5=0
2.	b) rhombus	2.	6x-2y=7
3.	a) (1, 1) or (2, 2)	3.	x=1
4.	b) $(2\sqrt{3}, 5)$	4.	9 or 7/2
5.	a) (-5, -4)	5.	p=5
6.	a) 132	**Section C (4marks)**	
7.	a) AB is parallel to CD	1.	(8, 0) (-2, 0)
8.	d) a set of collinear points	2.	x=2, 5x-3y=2, x-3y+6=0
9.	c) 5x+12y+4=0	3.	x-3y+5=0
10.	b)5	4.	3x+2y=12
Section A-Fill in the blanks		5.	3x+y=6, y-x=2
1	-2:5	6.	12x+5y=60
2.	(0, 3)	7.	4x+5y-1=0
3.	(1, -6)	8.	x+5y-3=0
4.	15	9.	23x+23y=11
5.	$x - 2 = 0$	10.	$4\sqrt{2}$
6.	3x-6y-7 = 0	**Section D (6marks)**	
Section A-VSA		1.	(-16, -2)
1.	(0,-2)	2.	(1, 6)
2.	x+y-5=0	3.	$\left(6, -\frac{3}{2}\right)\left(-14, \frac{17}{2}\right)$
3.	$\dfrac{-29}{37}$	4.	x-3y+5=0
4.	$\dfrac{29}{4}$	6.	$4x - 7y + 19 = 0, 7x + 4y - 48 = 0$
5.	$\frac{3}{10}$ units	7.	3x+4y-5=0
		8.	2x-y+1=0, x+2y-7=0
		9.	4x+y+5=0, $\left(\dfrac{-27}{17}, \dfrac{23}{17}\right)$
		10.	x cosθ $-$ y sinθ = acos2θ
		11.	x=7, $x + \sqrt{3}$ y= 7 +9$\sqrt{3}$