General Instructions:
 All questions are compulsory.
 The question paper consists of __4__ Sections (A, B, C, D).
 Use of calculator is not permitted.
 Draw neat and labelled diagrams wherever required.
 Internal choices are provided as per instructions.
 The duration of the question paper is 45 minutes.
 Marks allotted to each question are indicated against it.

Today's hard work makes your Tomorrow better

Section – A
1 × __6__ = __6__ Marks

1. *If the area of a triangle formed by the points (2,3),(4,7) and (6,11) is zero, what can you conclude?*

2. *If the distance of a point P(x,y) from the x-axis is 4 units, write the value of y.*

3. *If the midpoint of a line segment joining points (2,–3) and (x,5) lies on the x-axis, find x.*

4. *If the coordinates of a point are (a,b), write the coordinates of its reflection in the y-axis.*

5. *If the point P(3,y) lies on the perpendicular bisector of the line joining A(1,2) and B(5,2), find y.*

6. *True or False: Every point on the perpendicular bisector of a line segment is equidistant from the end points of the segment.*

Section – B
2 × __4__ = __8__ Marks

1. *Find the equation of the line on which the midpoint of the line joining (2, 6) and (4, 10) lies.*

2. *For what value of k are the points(4,2), (6,6), (k,10) non-collinear?*

3. *Show that the triangle with vertices A(–2,3), B(2,3) and C(–2,7) is an isosceles right-angled triangle.*

4. *The coordinates of the vertices of a triangle are A(2, -2), B(6, 2) and C(4, 6). Find the coordinates of the point where the **median through A** meets BC.*

Section - C
3 × __4__ = __12__ Marks

1. Find the perimeter of the triangle whose vertices are A(2a,3), B(4,7), C(2,11) , where *a* > 0 and the triangle is right-angled at A.

2. Find the value(s) of *k* such that the point P(2k, k−1) is equidistant from the points A(1,3) and B(7,−3).

3. Find the area of a rhombus if three of its vertices are (1, 1), (4, 5) and (7, 1) and the fourth vertex lies on the x-axis.

4. Show that the **origin** lies on the line segment joining (6, −3) and (−2, 1). Hence find the ratio of division.

Section - D (Case Based)
__4__ Marks

1. Rahul wants to install two light poles in a park at the points
A(2,4) and B(6,4).
He decides to install a water tap at a point which is equidistant from both the light poles.
The water tap is to be installed on the y-axis.
Answer the following questions:
(a) Find the mid-point of the line joining points A and B.
(b) Find the slope of the line joining points A and B.
(c) What is the locus of points which are equidistant from points A and B?
(d) Find the coordinates of the water tap.

OR

2. Points
A(2,−2) and B(8,4)
represent two schools.
A student lives at point P which divides AB internally in the ratio 1:2.
Answer the following:
(a) Find the coordinates of point P.
(b) Show that point P is equidistant from A and B.
(c) Find the distance of point P from the origin.
(d) Write the coordinates of the reflection of P in the y-axis.

Question Type	No. of Qs	Marks	Time (min)
1 Mark	6	6	9 min
2 Marks	4	8	12 min
3 Marks	4	12	20 min
4 Marks	1	4	4 min
Revision / Buffer Time			0–3 min
TOTAL TIME			45 min