Q. NO	QUESTION	MARK
1.	**Population vs Year graph given below** **Based on the above information, answer the following questions.** **i)The slope of line AB is** **a) 2** **b) 1** **c) ½** **d) 1/3** **ii) The equation of line AB is** **a)X + 2Y = 1791** **b) X − 2Y = 1801** **c) X − 2Y = 1791** **d) X − 2Y + 1801 = 0** **iii) The population in the year 2010 is (in crores)** **a)104.5** **b)119.5** **c) 109.5** **d) none** **iv) The equation of line perpendicular to line AB and passing through (1995,97) is** **a) 2X − Y = 4087** **b) 2X + Y = 4087** **c) 2X + Y = 1801** **d) None**	4
2.	**Three Girls rani, Mansi, Sneha are talking to each other while maintaining a social distance due to covid-19. They are standing on vertices of a triangle, whose coordinates are given.** **Rani (2, -2)** **Mansi (1, 1)** **Sneha (-1, 0)** **Based on the above information answer the following questions.** **i)The equation of lines formed by Rani and Mansi is** **a) 3X − Y = 4** **b) 3X + Y = 4** **c) X − 3Y = 4** **d) X + 3Y = 4** **ii) Slope of equation of line formed by Rani and Sneha is** **a)$\frac{2}{3}$** **b) $\frac{-3}{2}$** **c) $\frac{-2}{3}$** **d) $\frac{1}{3}$** **iii) The equation of median of lines through Rani is** **a)5X + 4Y = 2** **b) 5X − 4Y = 2** **c) 4X − 5Y = 1** **d) None of these.** **iv) The slope of line between Mansi and rani is** a) **-3** b)**-2** c) **-1** **d) 0**	4
3.	Three girls Sonam, Tina and Mina are talking to each other while maintaining social distance due to covid-19. They are standing on vertices of a triangle	4

whose co-ordinates are given

Sanam (5, -5)

Tina (3, 3)   Mina (- 4,0)

Based on the above information answer the following question
   a) What is the equation of lines formed by Sanam and Tina?
   b) What is the slope of equation of line formed by Sanam and Mina?
   c) What is the equation of median of lines through Sanam?
   d) What is the equation of line passing through Sanam and parallel to line formed by Mina and Tina?

| 4. | Four friends Richa, Sunita, Viki and Raju are sitting on vertices of a rectangle whose coordinates are

Richa (2, 6)   Raju (6, 4)

Sunita (3, 5)   Viki (5, 3)

Based on the above information answer the following question
   a) What is the equation formed by Sunita and Raju?
   b) What is the equation formed by Richa and Viki?
   c) What is the slope of equation of the line formed Richa and Raju?
   d) What is the pair of the same slope? | 4 |
| 5. | Four friends Rishab,Shubham,Vikram and Raj Kumar are sitting on the vertices of a rectangle, whose coordinates are given. | 4 |

Rishabh (1, 4)   Rajkumar (5, 4)
A   D

B   C
Shubham (1, 2)   Vikram (5, 2)
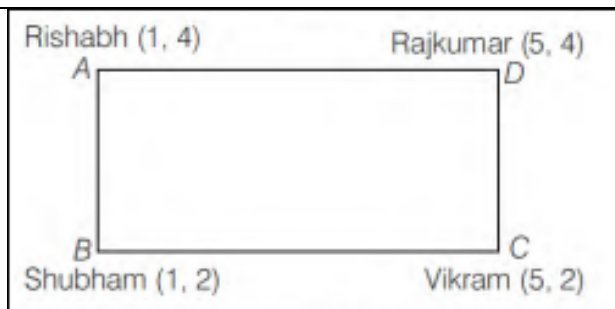
Based on the above information solve the following questions.
   (i) The equation formed by Shubham and Rajkumar is
   a)x+2y+3=0   b)x–2y–3=0
   c)x–2y+3=0   d)x+2y-3=0

   (ii) Pair for the same slope is
    a) Rishab , Raj Kumar and Shubham,Vikram
    b) Rishab, Raj Kumar and Rajkumar,Vikram
    c) Rishab, Raj Kumar and Shubham,Rishab
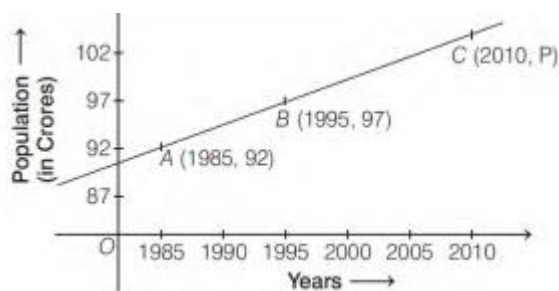   d) Rishab, Shubham and Shubham,Vikram

   (iii)Slope of the line formed by Shubham and Raj kumar is
    a) 0   b) 1   c) 2   d) $\frac{1}{2}$
   (iv) The distance between Rishab and Shubham is
    a) 1   b) 4   c) 2   d) 24

6. Population Vs Year graph given below.   4

Based on the above information answer the following questions.
   (i)   The slope of the line AB is

   a)   2   b)   1
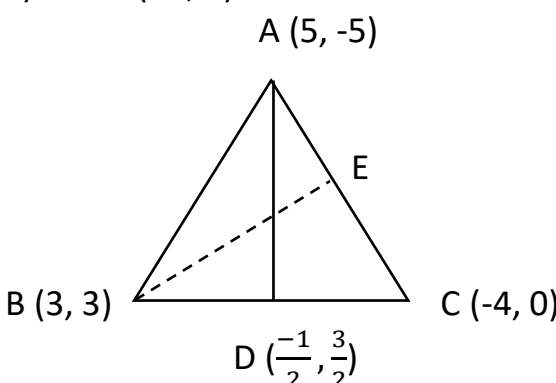   c) $\frac{1}{2}$ d) $\frac{1}{3}$

   (ii)   The equation of line AB is
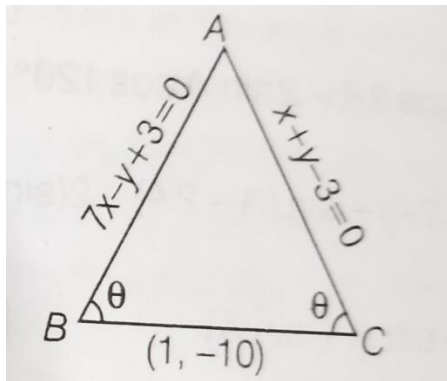   a)   x +2y =1791   b) x–2y=1801
   c) x–2y =1791   d)x–2y+1801=0

(iii) The population in year 2010 is (in crores)

  a)104.5   b)119.5
  c)109.5   d) None of these

iv) The equation of line perpendicular to AB and passing through ((1995,97) is
  a)2x–y=4087   b) 2x+y=4087
  c) 2x+y=1801   d) none of these

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7. villages of Shanu and Arun's are 50km apart and are situated on Delhi Agra highway as shown in the following picture. Another highway YY' crosses Agra Delhi highway at O(0,0). A small local road PQ crosses both the highways at pints A and B such that OA=10 km and OB =12 km. Also, the villages of Barun and Jeetu are on the smaller high way YY'. Barun's village B is 12km from O and that of Jeetu is 15 km from O.   **4**

(i)What are the coordinates of A?
   a). (10, 0)   b). (10, 12)   c).(0,10)   d) (0,15)
(ii)What is the equation of line AB?
  (a)5x + 6y = 60   (b)6x + 5y = 60
  (c) x = 10   (d)y = 12
(iii)What is the distance of AB from O(0, 0)?
(a)60 km   (b)60/√61 km   (c)√61 km   (d)60 km
(iv)What is the slope of line AB?
(a)6/5   (b)5/6   (c)-6/5   (d)10/12

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8. A parking lot in an IT company is triangular shaped with two of its vertices at B(–2, 0) and C(1, 12). The third vertex A is at the midpoint of the line joining the points (1, 1) and (3, 11).   **4**

Based on the above information, answer the following questions.
(i)find the coordinates of A
(a)(-1,-5)   (b)(2, 6)   (c)(1, -1)   (d)(-2, -6)

	(ii)Find the equation of line parallel to BC and passing through the vertex A. (a)4x-y=2　(b)4y-x=2　(c)4x-y=-2　(d)4y-x=-2 (iii)Find the equation of line that passes through the points B(-2, 0) and C(1,12). (a)y+4x=8　(b)4x-y-8=0　(c)4x-y+8=0　(d)4y-4x=8 (iv)Find the equation of line perpendicular to BC and passing through the vertex A. (a)x-4y=26　(b)x+2y=26　(c)x-2y=26　(d)x+4y=26	
9.	If A and B are two persons sitting at the positions (2,-3) and (6,-5). IfC is a third person who is sitting between A and B such that it divides the line AB in 1 : 3 ratio Based on the above information, answer the following questions. (i) The distance between A and B is (a) $\sqrt{5}$(b) $2\sqrt{5}$ (c) 3 (d) 4	4
10.	Consider the ΔABC with vertices A(1 ,4) B (2 ,-3) andC(-1 ,-2).Let AD is the median and AM is the altitude through A. Find the equation of median through A. 　a) x-13y+9=0 　b) x+13y+9=0 　c) 13x-y-9=0 　d) 13x-y+9=0	4
11.	Two equal sides of an isosceles triangle are given by the equations 7x – y +3 =0 and x + y – 3 = 0 and its third side passes through the point (1, - 10). Determine the equation of third side.	4
12.	Three girls, Rani, Mansi, Sneha are talking to each other and maintaining a social distance for due to Covid-19. They are stand on vertices of a triangle as given in figure. Then Find 　i)　　The equation of line formed by rani and mansi 　ii)　　The equation of median of lines through Rani 　iii)　　The equation of altitude through mansi 　iv)　　The equation of line passing through the rani and parallel to line formed by mansi and sneha	4

ANSWERS:

Q. NO	ANSWER	MARKS
1.	i) c ii) b iii) a iv) b	4
2.	i) b ii) c iii) a iv) a	4
3.	Let the points on Sanam, Tina, Mina stand on a vertices of a triangle be A, B and C (5, -5), B (3, 3) and C (- 4, 0) A (5, -5) E B (3, 3) C (-4, 0) D $(\frac{-1}{2}, \frac{3}{2})$ a) Equation of AB is Y + 5 = $\frac{3+5}{3-5}$ $x - 5$ or, 4x + y - 15 = 0 b) Slope of equation of line AC is m = $\frac{0+5}{-4-5} = \frac{5}{-9}$ c) Let D is the mid point of BC is Coordinates of D = ($\frac{3-4}{2}$, $\frac{3+0}{2}$) = ($\frac{-1}{2}, \frac{3}{2}$) B Equation of AD is y + 5 =- $\frac{\frac{3}{2}+5}{\frac{1}{2}-5}$ $(x - 5)$ or, 13x + 11y − 10 = 0 d) Equation of line passing through A and parallel to BC is Y + 5 = $\frac{3}{2}$ $(x - 5)$ 3x − 5y = 40.	4
4.	a) We have the positions Sunita (3, 5) and Raju (6, 4)	4

	Slope $m_1 = \dfrac{4-5}{6-3} = \dfrac{-1}{3}$
	 Equation form by Sunita and Raju is x + 3y = 18
	    b) We have the positions Richa (2, 6) and Viki (5, 3)
	       Slope, $m_2 = \dfrac{3-6}{5-2} = -1$
	       Equation form by Richa and Viki is y $-y_1 = -1\ (x -x_1)$
	                            Or, x + y =8
	    c) We have the positions Richa (2, 6) and Raju (6, 4)
	       Slope, $m_3 = \dfrac{4-6}{6-2} = \dfrac{-1}{2}$
	
	    d) The line formed Richa and Raju is opposite and parallel to the line formed by Sunita and Viki
	    Hence the first pairs have the same slot.	

5.	i) c ii) a iii) d iv) c	4
6.	(i) c) $\dfrac{1}{2}$ (ii) b) x–2y=1801 (iii) d) None of these (iv) b) 2x+y=4087	4
7.	(i)(a)(10, 0) (ii)(b)6x+5y=60 (iii)(b)$\dfrac{60}{\sqrt{61}}\,km$ (iv)(c)$-\dfrac{6}{5}$	4
8.	(i)A is the mid-point of the points (1,1) and (3,11), By mid point formula A=$(\dfrac{1+3}{2},\dfrac{1+11}{2})$ Therefore, coordinates of A= (2, 6) (ii)Equation of line BC is $$y-y_{1=}\dfrac{y_2-y_1}{x_2-x_1}(x-x_1)$$ y-0=$\dfrac{12-0}{1+2}(x+2) => 4x-y+8=0$ Equation of line parallel to BC and passes through (2,6) is y-6=4(x-2)=> 4x - y =2. (iii)Equation of line passes through two points B(-2, 0) and C(1, 12) is $$y-y_{1=}\dfrac{y_2-y_1}{x_2-x_1}(x-x_1)$$ 4x-y-8=0. (iv) Equation of line perpendicular to BC and passes through (2,6) is y-6=$-\dfrac{1}{4}(x-2)$ x+4y=26.	4
9.	(b)	4
10.	(c)	4
11.	Equations of two sides are 7x − y +3=0 and x +y -3 = 0.	4

Slope of the given lines are 7 and – 1 respectively.

Then equation of line passing through (1, -10) is y +10= m(x – 1)

Since it makes equal angles α, with the given lines

$$tan a = \frac{m-7}{1+7m} = \frac{-1-m}{1+m(-1)}$$

After solving we get m= 1/3 or -3

Hence the equation of third line is y+10=-3 (x-1)

Or 3x+ y + 7=0

12.	i) 3x+y=4	4
	ii) 5x+4y=2	
	iii) 3x − 2y=1	
	iv) X − 2y=6	