Exam ID.



Candidates must write the Set No. on the title page of the OMR Sheet.

DAV PUBLIC SCHOOLS, ODISHA ZONE –I PA-II EXAMINATION, 2021-22

- Check that this question paper contains 07 printed pages.
- Set number given on the right-hand side of the question paper should be written on the OMR SHEET by the candidate.
- Check that this question paper contains 50 questions.

CLASS – XI SUB : MATHEMATICS (041)

Time :90 Minutes

Maximum Marks: 40

General Instruction:

- 1. This question Paper contains three sections-A, B and C. Each part is compulsory.
- 2. Section A has 20 MCQs, attempt any 16 out of 20.
- 3. Section B has 20 MCQs, attempt any 16 out of 20.
- 4. Section C has 10 MCQs, attempt any 8 out of 10.
- 5. There is no negative marking.
- 6. All questions carry equal marks.

SECTION – A

(Section A consists of 20 questions of each 1mark weightage. Any 16 questions are to be attempted. The first attempted 16 questions would be evaluated.)

Q1.	Let $A = \{5,6\}$ and $B = \{7,6\}$, the	e number of relation from A to B is	1
	A. 4	B. 16	
	C. 32	D. 64	
Q2.	If $(x+3,5) = (6,2x+y)$, then the value of x and y is		
	A. 3,1	B. 3,-1	
	C3,1	D3,-1	
Q3.	The variance of the first 5 natu	ıral numbers is	1
	A. 1	B. 2	
~ (C. 3	D. 4	
Q4.	The range of $f(x) = 2 - (x - 3)$	r^2 is	1
	A. (-∞,2]	B. $[2, \infty)$	
	C. (2,∞)	D. $(-2, \infty)$	
Q5.	If $f(x) = x^3 - \frac{1}{x^3}$, then the value	e of $f(x) + f\left(\frac{1}{x}\right)$ is	1
	A. 0	B. $2x^{3}$	
	C. $3 x^3$	D. $2/x^2$	
Q6.	Let A,B are two sets. If $A \cap X$	$= \mathbf{B} \cap \mathbf{X} = \emptyset$ and $\mathbf{A} \cup \mathbf{X} = \mathbf{B} \cup \mathbf{X}$, for some set	1
•	X, then		
	A. $A = B$	B. A \neq B	
	C. A \cap B=Ø	D. A – B $\neq \emptyset$	
Q7.	The relation f defined by $f(x)$ -	$\begin{cases} x^2 & 0 \le x \le 2 \\ is \end{cases}$	1
	The relation rulerined by $f(x)$ =	$\begin{array}{ccc} 3x & 2 \leq x \leq 10 \end{array}$	
	A. a function	B. both relation and function	
	C. not a function	D. not a relation	
Q8.	Let $f = \{(1,1), (2,3), (0,-1), (-1,-3)\}$	} be a function from Z to Z defined by f(x) =	1
	ax + b, for some integers a and b, then value of a and b are		
	A. 1,0	B1,0	
00	C. $-1,2$	D. 2,-1	1
Q9.	The value of 1^{+n-3} , $n \in \mathbb{Z}$ is		I
	A1	B. I	
010		D1	1
Q10.	If $z = 2 + \sqrt{3}i$ then the value o	f the multiplicative inverse of z is	I
	A. $\frac{2-\sqrt{3}}{7}$	B. $\frac{2+\sqrt{3}1}{7}$	
	C. 1	$D \sqrt{7}$	
011.	The value of i ¹⁴³ + i ¹⁴⁴ + i ¹⁴⁵	$5 + i^{146}$ is	1
L	A. 0	B. 1	•
	C1	D. i	

Q12.	If x - i y = $\frac{a+ib}{a-ib}$, then the value of x	$x^2 + y^2$	1
	A. 1	B1	
	C. 0	D. $a^2 + b^2$	
Q13.	If α , β are different complex numbers	with $ \beta = 1$, then the value of $\left \frac{\beta-\alpha}{1-\overline{\alpha}\beta}\right $ is	1
	A. 1	B. 0	
	C. $\alpha^2 + \beta^2$	D. $\alpha^2 - \beta^2$	
Q14.	The value of $\lim_{x\to 0} \frac{\sin 3x}{\tan 5x}$ is		1
	A. 3/5	B. 5/3	
	C. 1	D. Not defined	
Q15.	(a + bx x <	< 1	1
	For the function $f(x) = \begin{cases} 4 & x = \end{cases}$	= 1, and if $\lim_{x \to 1} f(x) = f(1)$ The values of	
	$(\mathbf{b} - \mathbf{a}\mathbf{x} + \mathbf{x})$	> 1 $x \to 1$	
	a and b are		
	A. 0,4	B. 4,0	
	C. 1,-2	D1,-2	
Q16.	$If f(x) = \begin{cases} \frac{ x }{x} & x \neq 0 \\ 0 & x = 0 \end{cases} then \lim_{x \to 0} f(x) is$		
	$A_{\rm Exist}$	B. does not exist	
	C. 1	D1	
017.	The distance of the point (-2,-3) fro	m the line $3x + 4y + 1 = 0$ is	1
	$\Delta \frac{17}{1}$	$B \frac{-17}{2}$	
	5	$\frac{1}{\sqrt{13}}$	
	C. $\frac{12}{5}$	D. 5	
Q18.	If $\lim_{x\to 0} \frac{x}{\sqrt{x+1}-1}$ exist, then the value	e of the limit is	1
	A. 2	B. log _e 2	
	C2	Dlog _e 2	
Q19.	The distance between the lines 3x+4	4y+5=0 and 6x+8y+10=0 is	1
	A. $\frac{7}{2}$	B. 1	
	C. $\frac{\frac{5}{12}}{5}$	D. 0	
Q20.	In a GP the tenth term is 9, the for	with term is 4 and 1^{st} term is $\frac{8}{2}$, then the	1
	7th torm is		
		P 6	
	A. 0	D0	

C. 9 D. -9

SECTION – B

(Section B consists of 20 questions (21 - 40) of each 1mark weightage. Any 16 questions are to be attempted. The first attempted 16 questions would be evaluated.)

Q21	If $7^{\frac{1}{2}}, 7^{\frac{1}{4}}, 7^{\frac{1}{8}}, \dots, (to \infty) = ($	$\sqrt{7}$, then the value of x is	1
	A. $\frac{1}{2}$	B. 4	
	C. 2	D. 0	
Q22.	If pth , qth and rth terms	of a GP area , b and c respectively. Then the	1
	value of $a^{q-r} \times b^{r-p} \times c^p$	^{-q} is	
	A. 1	B. 0	
	C1	D. a	
Q23.	If $\frac{a^{n+1}+b^{n+1}}{a^n+b^n}$ may be the G.	M between a and b. then the value of n is	1
	A. 1	B1	
	C. $\frac{1}{2}$	D. $\frac{-1}{2}$	
Q24.	If the sum of n terms of a	n AP is $\mathbf{nP} - \frac{1}{2}\mathbf{n}(\mathbf{n}^2 - 1)\mathbf{Q}_i$, where P and Q are	1
	constants, then the comm	on difference is	
	A. P-Q	B. Q	
	C. P	D. P+Q	
Q25.	The range of signum func	tion is	1
	A. {-1,0,1}	B. {1,-1}	
	C. Z,{-1,0,1}	D. Z,{-1,1}	
Q26.	Let $f : \mathbb{R} \to \mathbb{R}$ be given by $f($	$x = x^2 + 3$, then the pre-images of 2 under f is	1
	A. {-1,1}	B. {+1,-1,0}	
~ ~ ~	C. {1}	D. Does not exist	
Q27.	In a school there are 20 to	eachers who teach Mathematics or Physics. Of	1
	these 8 teach only ma	thematics and 4 teach both physics and	
	$\frac{1}{2}$	er teaches physics only is	
	\mathbf{A} . 10 \mathbf{C} \mathbf{A}	D. 0 D. 12	
028	$\begin{array}{c} \mathbf{C} & 4 \\ \mathbf{T} & 1 + 2\mathbf{i} \\ \mathbf{I} & \mathbf{I} & \mathbf{I} \\ \mathbf{I} \\ \mathbf{I} & \mathbf{I} \\ \mathbf{I} & \mathbf{I} \\ \mathbf{I} \\ \mathbf{I} \\ \mathbf{I} & \mathbf{I} \\ \mathbf$	D12	1
Q20.	If $z = \frac{1}{1-i}$, then z lies in the	le	1
	A. I quadrant	B. II quadrant	
	C. III quadrant	D. IV quadrant	
Q29.	The solution of $x^2 + \frac{x}{\sqrt{2}} + 1$	=0 are	1
	$\Delta \frac{-1 \pm \sqrt{7}i}{1 + \sqrt{7}i}$	$B = \frac{-1+\sqrt{7}i}{\sqrt{7}i}$	
	$2\sqrt{2}$	$2\sqrt{2}$	
	C. $\frac{-1 \pm \sqrt{71}}{\sqrt{2}}$	D. $\frac{-1 \pm \sqrt{31}}{2\sqrt{2}}$	
	v —	- v -	

A. $22 + \frac{3}{2}(3^{11} - 1)$ B. $22 + \frac{3}{2}(3^{11} - 1)$ C. $22 + \frac{5}{2}(3^{11} - 1)$ B. $24 + \frac{3}{2}(3^{11} - 1)$ Q31. If a,b and c are in G.P and $\frac{1}{x} = \frac{1}{y} = \frac{1}{c^2}$ then x, y, z are in A. A.P B. G.P C. Both A.P and G.P D. Neither A.P nor G.P Q32. If A and G be respectively A.M and G.M between two positive 1 numbers. Then numbers are A. $A \pm \sqrt{A^2 + G^2}$ B. $A \pm \sqrt{A^2 - G^2}$ C. $-A \pm \sqrt{A^2 + G^2}$ D. $-A - \sqrt{A^2 + G^2}$ Q33. The line passing through the point (x ₁ y ₁) and parallel to ax+by+c=0 is 1 A. $a(x \cdot x_1) + b(y \cdot y_1) = 0$ B. $a(x \cdot x_1) - b(y \cdot y_1) = 0$ C. $-a(x \cdot x_1) + b(y \cdot y_1) = 0$ D. $-a(x \cdot x_1) - b(y \cdot y_1) = 0$ Q34. If N=10, $\sum x = 60$ and $\sum x^2 = 1000$ then standard deviation is 1 A. -8 C. ± 8 D. 0 Q35. The variance of 10 observations is 4. If each observation is multiplied 1 by 3, then the variance of the new data is A. 36 C. 6 D. 19 Q36. The value of $\lim_{x \to 0} \frac{e^{5x} - e^x}{x}$ is A. 4 B. -36 C. 2 D. 0 Q37 The ratio in which line joining (-4,2) and (2,1) is divided externally by x-1 axis is A. $1:2$ B. $2:1$ C. $-1:2$ D. $1:-2$ Q38. The mean of first n natural numbers is A. $\frac{n + \frac{1}{2}}{2}$ B. $\frac{n}{2}$ Q39. The slope of the line which passes through the origin and the midpoint 1 of the segment joining the points (0,-4) and (8,0) is A. 2 B. $-\frac{1}{2}$ C. -2 D. 4	Q30.	The value of $\sum_{k=1}^{11}(2+3^k)$ is		1
C. $22+\frac{5}{2}(3^{11}-1)$ D. $44+\frac{3}{2}(3^{11}-1)$ If a,b and c are in G.P and $\frac{1}{a^{k}} = \frac{1}{b^{k}} = \frac{1}{c^{k}} \frac{1}{c} (1 + \frac{1}{c})$ A. A.P B. G.P C. Both A.P and G.P D. Neither A.P nor G.P Q32. If A and G be respectively A.M and G.M between two positive numbers. Then numbers are A. $A\pm\sqrt{A^{2}+G^{2}}$ B. $A\pm\sqrt{A^{2}-G^{2}}$ C. $-A\pm\sqrt{A^{2}+G^{2}}$ D. $-A-\sqrt{A^{2}+G^{2}}$ Q33. The line passing through the point (x_{1}, y_{1}) and parallel to $ax+by+c=0$ is A. $a(x\times_{1})+b(y-y_{1})=0$ C. $-a(x\times_{1})+b(y-y_{1})=0$ Q34. If N=10, $\sum x=60$ and $\sum x^{2}=1000$ then standard deviation is A. -8 C. ± 8 D. 0 Q35. The variance of 10 observations is 4. If each observation is multiplied by 3, then the variance of the new data is A. 36 C. 6 D. 19 Q36. The value of $\lim_{x\to 0} \frac{e^{5x}-e^{x}}{x}$ is A. 4 B. -36 C. 2 D. 0 Q37. The ratio in which line joining (-4,2) and (2,1) is divided externally by x-1 axis is A. $1:2$ B. $2:1$ C. $-1:2$ D. $1:-2$ Q38. The mean of first n natural numbers is A. $\frac{n+t1}{2}$ B. n C. $\frac{n(n+1)}{2}$ D. n Q39. The slope of the line which passes through the origin and the midpoint 1 of the segment joining the points (0,-4) and (8,0) is A. 2 B. $-\frac{1}{2}$ C. -2 D. -4		A. $22 + \frac{3}{2}(3^{11} - 1)$	B. $22 + \frac{3}{2}(3^{11} + 1)$	
Q31.If a,b and c are in G.P and $a_x^{\frac{1}{x}} = b_y^{\frac{1}{y}} = c_z^{\frac{1}{z}}$ then x, y,z are in A. A.P B. G.P C. Both A.P and G.P1Q32.If A and G be respectively A.M and G.M between two positive numbers. Then numbers are A. $A \pm \sqrt{A^2 + G^2}$ B. $A \pm \sqrt{A^2 - G^2}$ C. $-A \pm \sqrt{A^2 + G^2}$ B. $A \pm \sqrt{A^2 - G^2}$ C. $-A \pm \sqrt{A^2 + G^2}$ D. $-A - \sqrt{A^2 + G^2}$ 1Q33.The line passing through the point $(x_1 y_1)$ and parallel to $ax+by+c=0$ is A. $a(x-x_1)+b(y-y_1)=0$ C. $-a(x-x_1)+b(y-y_1)=0$ C. $-a(x-x_1)+b(y-y_1)=0$ C. $-a(x-x_1)+b(y-y_1)=0$ D. $-a(x-x_1)-b(y-y_1)=0$ Q34.If N=10, $\sum x=60$ and $\sum x^2=1000$ then standard deviation is A8 C. ± 8 D. 01Q35.The variance of 10 observations is 4. If each observation is multiplied by 3, then the variance of the new data is A. 36 C. 2 D. 191Q36.The value of $\lim_{x\to 0} \frac{e^{5x}-e^x}{x}$ is A. 4 C. 2 C1:2 C1:2 D. 1:-21Q37.The ratio in which line joining (-4,2) and (2,1) is divided externally by x- axis is A. 1:2 C1:2 D. 1:-21Q38.The mean of first n natural numbers is A. $\frac{A^{-\frac{n+1}{2}}}{C}$ C2D. nQ39.The slope of the line which passes through the origin and the midpoint of the segment joining the points (0, -4) and (8,0) is A. 2 C21		C. $22 + \frac{5}{2}(3^{11} - 1)$	D. $44 + \frac{3}{2}(3^{11} - 1)$	
A. A.PB. G.PC. Both A.P and G.PD. Neither A.P nor G.PQ32.If A and G be respectively A.M and G.M between two positivenumbers. Then numbers areA. $A \pm \sqrt{A^2 + G^2}$ B. $A \pm \sqrt{A^2 - G^2}$ C. $-A \pm \sqrt{A^2 + G^2}$ D. $-A - \sqrt{A^2 + G^2}$ Q33.The line passing through the point $(x_1 y_1)$ and parallel to $ax+by+c=0$ isA. $a(x - x_1) + b(y - y_1) = 0$ B. $a(x - x_1) - b(y - y_1) = 0$ C. $-a(x - x_1) + b(y - y_1) = 0$ D. $-a(x - x_1) - b(y - y_1) = 0$ C. $-a(x - x_1) + b(y - y_1) = 0$ D. $-a(x - x_1) - b(y - y_1) = 0$ C. $-a(x - x_1) + b(y - y_1) = 0$ D. $-a(x - x_1) - b(y - y_1) = 0$ C. $-a(x - x_1) + b(y - y_1) = 0$ D. $-a(x - x_1) - b(y - y_1) = 0$ Q34.If N=10, $\sum x = 60$ and $\sum x^2 = 1000$ then standard deviation is1A8B. 8C. ± 8 D. 0Q35.The variance of 10 observations is 4. If each observation is multiplied1by 3, then the variance of the new data isA. 36C. 2D. 19Q36.The value of $\lim_{x \to 0} \frac{e^{5x} - e^x}{x}$ isA. 1:2D. 1:2Q38.The mean of first n natural numbers isA. $\frac{n + 1}{2}$ D. nQ39.The slope of the line which passes through the origin and the midpointA. 2B. $-\frac{1}{2}$ C2D4	Q31.	If a.b and c are in G.P and $a_{x}^{\frac{1}{x}} = 1$	$D^{\frac{1}{y}} = C^{\frac{1}{z}}$ then x, y,z are in	1
C. Both A.P and G.P D. Neither A.P nor G.P Q32. If A and G be respectively A.M and G.M between two positive numbers. Then numbers are A. $A \pm \sqrt{A^2 + G^2}$ B. $A \pm \sqrt{A^2 - G^2}$ C. $-A \pm \sqrt{A^2 + G^2}$ D. $-A - \sqrt{A^2 + G^2}$ Q33. The line passing through the point (x_1, y_1) and parallel to $ax+by+c=0$ is 1 A. $a(x-x_1)+b(y-y_1)=0$ B. $a(x-x_1)-b(y-y_1)=0$ C. $-a(x-x_1)+b(y-y_1)=0$ D. $-a(x-x_1)-b(y-y_1)=0$ Q34. If N=10, $\sum x=60$ and $\sum x^2=1000$ then standard deviation is 1 A. -8 B. 8 C. ± 8 D. 0 Q35. The variance of 10 observations is 4. If each observation is multiplied 1 by 3, then the variance of the new data is A. 36 B. -36 C. 6 D. 19 Q36. The value of $\lim_{x\to 0} \frac{e^{5x}-e^x}{x}$ is 1 A. 4 B. -3 C. 2 D. 0 Q37 The ratio in which line joining (-4,2) and (2,1) is divided externally by x- 1 axis is A. $\frac{1:2}{2}$ B. $2:1$ C. $-1:2$ D. $1:-2$ Q38. The mean of first n natural numbers is A. $\frac{n+1}{2}$ B. n C. $\frac{n(n+1)}{2}$ D. n Q39. The slope of the line which passes through the origin and the midpoint 1 of the segment joining the points (0,-4) and (8,0) is A. 2 B. $-\frac{1}{2}$ C. -2 D. -4		A. A.P	B. G.P	
Q32.If A and G be respectively A.M and G.M between two positive numbers. Then numbers are1A. $A \pm \sqrt{A^2 + G^2}$ B. $A \pm \sqrt{A^2 - G^2}$ C. $-A \pm \sqrt{A^2 + G^2}$ D. $-A - \sqrt{A^2 + G^2}$ Q33.The line passing through the point $(\mathbf{x}_1, \mathbf{y}_1)$ and parallel to $\mathbf{ax} + \mathbf{by} + \mathbf{c} = 0$ is A. $a(\mathbf{x} - \mathbf{x}_1) + \mathbf{b}(\mathbf{y} - \mathbf{y}_1) = 0$ B. $a(\mathbf{x} - \mathbf{x}_1) - \mathbf{b}(\mathbf{y} - \mathbf{y}_1) = 0$ 1Q34.If N=10, $\sum \mathbf{x} = 60$ and $\sum \mathbf{x}^2 = 1000$ then standard deviation is A. $-\mathbf{a}$ 11Q35.The variance of 10 observations is 4. If each observation is multiplied by 3, then the variance of the new data is A. $-\mathbf{a}$ 1Q36.The value of $\lim_{\mathbf{x} \to 0} \frac{e^{5\mathbf{x}} - e^{\mathbf{x}}}{\mathbf{x}}$ is1Q37The ratio in which line joining (-4,2) and (2,1) is divided externally by \mathbf{x} - 1 axis is A. $1:2$ B. $2:1$ C. $-1:2$ D. \mathbf{n} Q38.The mean of first n natural numbers is A. $\frac{n+1}{2}$ B. \overline{n} C. -2 D. \mathbf{n} Q39.The slope of the line which passes through the origin and the midpoint of the segment joining the points (0,-4) and (8,0) is A. 2 D. -4		C. Both A.P and G.P	D. Neither A.P nor G.P	
numbers. Then numbers are A. $A \pm \sqrt{A^2 + G^2}$ B. $A \pm \sqrt{A^2 - G^2}$ C. $-A \pm \sqrt{A^2 + G^2}$ D. $-A - \sqrt{A^2 + G^2}$ Q3. The line passing through the point (x_1, y_1) and parallel to $ax+by+c=0$ is A. $a(x \cdot x_1)+b(y \cdot y_1)=0$ B. $a(x \cdot x_1)-b(y \cdot y_1)=0$ C. $-a(x \cdot x_1)+b(y \cdot y_1)=0$ D. $-a(x \cdot x_1)-b(y \cdot y_1)=0$ Q34. If N=10, $\sum x=60$ and $\sum x^2=1000$ then standard deviation is A. -8 B. 8 C. ± 8 D. 0 Q35. The variance of 10 observations is 4. If each observation is multiplied by 3, then the variance of the new data is A. 36 B. -36 C. 6 D. 19 Q36. The value of $\lim_{x \to 0} \frac{e^{5x}-e^x}{x}$ is A. 4 B. -3 C. 2 D. 0 Q37 The ratio in which line joining (-4,2) and (2,1) is divided externally by x-1 axis is A. $1:2$ B. $2:1$ C. $-1:2$ D. $1:-2$ Q38. The mean of first n natural numbers is A. $\frac{n+1}{2}$ B. n C. $\frac{n(n+1)}{2}$ D. n Q39. The slope of the line which passes through the origin and the midpoint of the segment joining the points (0,-4) and (8,0) is A. 2 C. -2 D. -4	Q32.	If A and G be respectively A.M a	nd G.M between two positive	1
A. $A \pm \sqrt{A^2 + G^2}$ B. $A \pm \sqrt{A^2 - G^2}$ C. $-A \pm \sqrt{A^2 + G^2}$ D. $-A - \sqrt{A^2 + G^2}$ Q33. The line passing through the point $(\mathbf{x}_1, \mathbf{y}_1)$ and parallel to $a\mathbf{x} + b\mathbf{y} + c = 0$ is A. $a(\mathbf{x} - \mathbf{x}_1) + b(\mathbf{y} - \mathbf{y}_1) = 0$ C. $-a(\mathbf{x} - \mathbf{x}_1) + b(\mathbf{y} - \mathbf{y}_1) = 0$ Q34. If N=10, $\sum \mathbf{x} = 60$ and $\sum \mathbf{x}^2 = 1000$ then standard deviation is A. -8 C. ± 8 D. 0 Q35. The variance of 10 observations is 4. If each observation is multiplied by 3, then the variance of the new data is A. -8 C. ± 8 D. 0 Q36. The value of $\lim_{\mathbf{x} \to 0} \frac{e^{5\mathbf{x}} - e^{\mathbf{x}}}{\mathbf{x}}$ is A. 4 B. -36 C. 2 D. 19 Q36. The value of $\lim_{\mathbf{x} \to 0} \frac{e^{5\mathbf{x}} - e^{\mathbf{x}}}{\mathbf{x}}$ is A. 4 B. -3 C. 2 D. 0 Q37 The ratio in which line joining (-4,2) and (2,1) is divided externally by x-1 axis is A. $1:2$ B. $2:1$ C. $-1:2$ D. $1:-2$ Q38. The mean of first n natural numbers is A. $\frac{A. \frac{n+1}{2}}{C1!2}$ D. n Q39. The slope of the line which passes through the origin and the midpoint 1 of the segment joining the points (0,-4) and (8,0) is A. 2 C2 D4		numbers. Then numbers are	-	
C. $-A \pm \sqrt{A^2 + G^2}$ D. $-A - \sqrt{A^2 + G^2}$ Q33. The line passing through the point $(\mathbf{x}_1, \mathbf{y}_1)$ and parallel to $\mathbf{ax} + \mathbf{by} + \mathbf{c} = 0$ is A. $a(\mathbf{x} - \mathbf{x}_1) + b(\mathbf{y} - \mathbf{y}_1) = 0$ D. $-a(\mathbf{x} - \mathbf{x}_1) - b(\mathbf{y} - \mathbf{y}_1) = 0$ Q34. If N=10, $\sum \mathbf{x} = 60$ and $\sum \mathbf{x}^2 = 1000$ then standard deviation is A. -8 C. ± 8 D. 0 Q35. The variance of 10 observations is 4. If each observation is multiplied by 3, then the variance of the new data is A. -8 C. 6 D. 19 Q36. The value of $\lim_{\mathbf{x} \to 0} \frac{e^{5\mathbf{x}} - e^{\mathbf{x}}}{\mathbf{x}}$ is A. 4 B. -36 C. 2 D. 0 Q37 The ratio in which line joining (-4,2) and (2,1) is divided externally by x-1 axis is A. $1:2$ C. $-1:2$ D. $1:-2$ Q38. The mean of first n natural numbers is A. $\frac{n+1}{2}$ C. $-1:2$ D. n Q39. The slope of the line which passes through the origin and the midpoint of the segment joining the points (0,-4) and (8,0) is A. 2 C. -2 D. -4		A. $A \pm \sqrt{A^2 + G^2}$	B. $A \pm \sqrt{A^2 - G^2}$	
Q33.The line passing through the point $(\mathbf{x}_1, \mathbf{y}_1)$ and parallel to $\mathbf{ax}+\mathbf{by}+\mathbf{c}=0$ is1A. $a(\mathbf{x}-\mathbf{x}_1)+b(\mathbf{y}-\mathbf{y}_1)=0$ B. $a(\mathbf{x}-\mathbf{x}_1)-b(\mathbf{y}-\mathbf{y}_1)=0$ 1C. $-a(\mathbf{x}-\mathbf{x}_1)+b(\mathbf{y}-\mathbf{y}_1)=0$ D. $-a(\mathbf{x}-\mathbf{x}_1)-b(\mathbf{y}-\mathbf{y}_1)=0$ 1Q34.If N=10, $\sum \mathbf{x}=60$ and $\sum \mathbf{x}^2=1000$ then standard deviation is1A. -8 B. 81C. ± 8 D. 0Q35.The variance of 10 observations is 4. If each observation is multipliedby 3, then the variance of the new data is-36C. 6 D. 19Q36.The value of $\lim_{\mathbf{x}\to 0} \frac{e^{5\mathbf{x}-e^{\mathbf{x}}}{\mathbf{x}}}{is}$ A. 4B. -3 C. 2D. 0Q37The ratio in which line joining (-4,2) and (2,1) is divided externally by x-1axis isA. $1:2$ A. $1:2$ B. $2:1$ C. $-1:2$ D. $1:-2$ Q38.The mean of first n natural numbers isA. $\frac{n+1}{2}$ D. nQ39.The slope of the line which passes through the origin and the midpoint of the segment joining the points (0,-4) and (8,0) isA. 2B. $-\frac{1}{2}$ C. -2 D. -4		C. $-A \pm \sqrt{A^2 + G^2}$	D. $-A - \sqrt{A^2 + G^2}$	
A. $a(x-x_1)+b(y-y_1)=0$ B. $a(x-x_1)-b(y-y_1)=0$ C. $-a(x-x_1)+b(y-y_1)=0$ D. $-a(x-x_1)-b(y-y_1)=0$ Q34. If N=10, $\sum x=60$ and $\sum x^2=1000$ then standard deviation is A. -8 B. 8 C. ± 8 D. 0 Q35. The variance of 10 observations is 4. If each observation is multiplied by 3, then the variance of the new data is A. 36 B. -36 C. 6 D. 19 Q36. The value of $\lim_{x\to 0} \frac{e^{5x}-e^x}{x}$ is A. 4 B. -3 C. 2 D. 0 Q37 The ratio in which line joining (-4,2) and (2,1) is divided externally by x-1 axis is A. $1:2$ C. $-1:2$ D. $1:-2$ Q38. The mean of first n natural numbers is A. $\frac{n+1}{2}$ D. n Q39. The slope of the line which passes through the origin and the midpoint of the segment joining the points (0,-4) and (8,0) is A. 2 C. -2 D. -4	Q33.	The line passing through the poin	It (x_1, y_1) and parallel to $ax+by+c=0$ is	1
C. $-a(x-x_1)+b(y-y_1)=0$ D. $-a(x-x_1)-b(y-y_1)=0$ Q34. If N=10, $\sum x=60$ and $\sum x^2=1000$ then standard deviation is A8 B. 8 C. ± 8 D. 0 Q35. The variance of 10 observations is 4. If each observation is multiplied by 3, then the variance of the new data is A. 36 B36 C. 6 D. 19 Q36. The value of $\lim_{x\to 0} \frac{e^{5x}-e^x}{x}$ is A. 4 B3 C. 2 D. 0 Q37 The ratio in which line joining (-4,2) and (2,1) is divided externally by x-1 axis is A. 1:2 B. 2:1 C1:2 D. 1:-2 Q38. The mean of first n natural numbers is A. $\frac{n+1}{2}$ B. \overline{n} C. $\frac{n(n+1)}{2}$ D. n Q39. The slope of the line which passes through the origin and the midpoint of the segment joining the points (0,-4) and (8,0) is A. 2 B. $-\frac{1}{2}$ C2 D4		A. $a(x-x_1)+b(y-y_1)=0$	B. $a(x-x_1)-b(y-y_1)=0$	
Q34.If $N=10$, $\sum x=60$ and $\sum x^2=1000$ then standard deviation is1A8B. 8C. ± 8 D. 0Q35.The variance of 10 observations is 4. If each observation is multiplied1by 3, then the variance of the new data isA. 36A. 36B36C. 6D. 19Q36.The value of $\lim_{x\to 0} \frac{e^{5x}-e^x}{x}$ is1A. 4B3C. 2D. 0Q37The ratio in which line joining (-4,2) and (2,1) is divided externally by x-1axis isA. 1:2A. 1:2B. 2:1C1:2D. 1:-2Q38.The mean of first n natural numbers isA. $\frac{n+1}{2}$ D. nQ39.The slope of the line which passes through the origin and the midpoint of the segment joining the points (0,-4) and (8,0) isA. 2B. $-\frac{1}{2}$ C2D4		C. $-a(x-x_1)+b(y-y_1)=0$	D. $-a(x-x_1)-b(y-y_1)=0$	
A8B. 8C. ±8D. 0Q35.The variance of 10 observations is 4. If each observation is multipliedby 3, then the variance of the new data isA. 36B36C. 6D. 19Q36.The value of $\lim_{x\to 0} \frac{e^{5x}-e^x}{x}$ isA. 4B3C. 2D. 0Q37The ratio in which line joining (-4,2) and (2,1) is divided externally by x-1axis isA. 1:2A. 1:2B. 2:1C1:2D. 1:-2Q38.The mean of first n natural numbers isA. $\frac{n+1}{2}$ D. nQ39.The slope of the line which passes through the origin and the midpointof the segment joining the points (0,-4) and (8,0) isA. 2B. $-\frac{1}{2}$ C2D4	Q34.	If N=10, $\sum x=60$ and $\sum x^2=1000$ t	hen standard deviation is	1
C. ± 8 D. 0Q35.The variance of 10 observations is 4. If each observation is multiplied by 3, then the variance of the new data is A. 36 C. 6D. 19Q36.The value of $\lim_{x\to 0} \frac{e^{5x}-e^x}{x}$ is C. 2D. 0Q37.The ratio in which line joining (-4,2) and (2,1) is divided externally by x- 0.01Q38.The mean of first n natural numbers is A. $\frac{n+1}{2}$ C. $\frac{n(n+1)}{2}$ B. \overline{n} C. $\frac{n(n+1)}{2}$ 1Q39.The slope of the line which passes through the origin and the midpoint of the segment joining the points (0,-4) and (8,0) is A. 2 C2D4	•	A8	B. 8	
Q35.The variance of 10 observations is 4. If each observation is multiplied by 3, then the variance of the new data is A. 36 C. 61Q36.The value of $\lim_{x\to 0} \frac{e^{5x} - e^x}{x}$ is1A. 4B3 C. 2D. 0Q37The ratio in which line joining (-4,2) and (2,1) is divided externally by x- axis is A. 1:2 C1:21.22Q38.The mean of first n natural numbers is A. $\frac{n+1}{2}$ C. $\frac{n(n+1)}{2}$ D. nQ39.The slope of the line which passes through the origin and the midpoint of the segment joining the points (0,-4) and (8,0) is A. 2 C212		C. ±8	D. 0	
by 3, then the variance of the new data is A. 36 B36 C. 6 D. 19 Q36. The value of $\lim_{x\to 0} \frac{e^{5x}-e^x}{x}$ is A. 4 B3 C. 2 D. 0 Q37 The ratio in which line joining (-4,2) and (2,1) is divided externally by x-1 axis is A. 1:2 B. 2:1 C1:2 D. 1:-2 Q38. The mean of first n natural numbers is A. $\frac{n+1}{2}$ B. \overline{n} C. $\frac{n(n+1)}{2}$ D. n Q39. The slope of the line which passes through the origin and the midpoint 1 of the segment joining the points (0,-4) and (8,0) is A. 2 B. $-\frac{1}{2}$ C2 D. 4	Q35.	The variance of 10 observations i	s 4. If each observation is multiplied	1
A. 36 C. 6 D. 19 Q36. The value of $\lim_{x\to 0} \frac{e^{5x}-e^x}{x}$ is A. 4 C. 2 D. 0 Q37 The ratio in which line joining (-4,2) and (2,1) is divided externally by x-1 axis is A. 1:2 C1:2 D. 1:-2 Q38. The mean of first n natural numbers is A. $\frac{n+1}{2}$ C. $\frac{n(n+1)}{2}$ D. n Q39. The slope of the line which passes through the origin and the midpoint 1 of the segment joining the points (0,-4) and (8,0) is A. 2 C2 D4		by 3, then the variance of the new	v data is	
C. 6D. 19Q36.The value of $\lim_{x\to 0} \frac{e^{5x} - e^x}{x}$ is1A. 4B3C. 2D. 0Q37The ratio in which line joining (-4,2) and (2,1) is divided externally by x-axis isA. 1:2B. 2:1C1:2D. 1:-2Q38.The mean of first n natural numbers isA. $\frac{n+1}{2}$ B. \overline{n} C. $\frac{n(n+1)}{2}$ D. nQ39.The slope of the line which passes through the origin and the midpointof the segment joining the points (0,-4) and (8,0) isA. 2B. $-\frac{1}{2}$ C2D4		A. 36	B36	
Q36.The value of $\lim_{x \to 0} \frac{e^{5x} - e^x}{x}$ is1A. 4B3J. 0Q37The ratio in which line joining (-4,2) and (2,1) is divided externally by x-1axis isA. 1:2B. 2:1C1:2D. 1:-2Q38.The mean of first n natural numbers is1A. $\frac{n+1}{2}$ B. \overline{n} C. $\frac{n(n+1)}{2}$ D. nQ39.The slope of the line which passes through the origin and the midpointof the segment joining the points (0,-4) and (8,0) isA. 2B. $-\frac{1}{2}$ C2D4		C. 6	D. 19	
A. 4 C. 2 D. 0 Q37 The ratio in which line joining (-4,2) and (2,1) is divided externally by x-1 axis is A. 1:2 C1:2 D. 1:-2 Q38. The mean of first n natural numbers is A. $\frac{n+1}{2}$ C. $\frac{n(n+1)}{2}$ Q39. The slope of the line which passes through the origin and the midpoint 1 of the segment joining the points (0,-4) and (8,0) is A. 2 C2 D4	Q36.	The value of $\lim_{x\to 0} \frac{e^{5x}-e^x}{x}$ is		1
C. 2 D. 0 Q37 The ratio in which line joining (-4,2) and (2,1) is divided externally by x-1 axis is A. 1:2 B. 2:1 C1:2 D. 1:-2 Q38. The mean of first n natural numbers is A. $\frac{n+1}{2}$ B. \overline{n} C. $\frac{n(n+1)}{2}$ D. n Q39. The slope of the line which passes through the origin and the midpoint 1 of the segment joining the points (0,-4) and (8,0) is A. 2 B. $-\frac{1}{2}$ C2 D4		A. 4	B3	
Q37The ratio in which line joining (-4,2) and (2,1) is divided externally by x-1 axis is A. 1:2 C1:2B. 2:1 D. 1:-2Q38.The mean of first n natural numbers is A. $\frac{n+1}{2}$ C. $\frac{n(n+1)}{2}$ B. \overline{n} D. nQ39.The slope of the line which passes through the origin and the midpoint of the segment joining the points (0,-4) and (8,0) is A. 2 C2B. $-\frac{1}{2}$ D4		C. 2	D. 0	
axis is A. 1:2 C1:2 B. 2:1 C1:2 D. 1:-2 Q38. The mean of first n natural numbers is A. $\frac{n+1}{2}$ C. $\frac{n(n+1)}{2}$ D. n Q39. The slope of the line which passes through the origin and the midpoint 1 of the segment joining the points (0,-4) and (8,0) is A. 2 C2 D4	Q37	The ratio in which line joining (-4	1,2) and (2,1) is divided externally by x-	1
A. 1:2 C1:2 B. 2:1 D. 1:-2 Q38. The mean of first n natural numbers is A. $\frac{n+1}{2}$ C. $\frac{n(n+1)}{2}$ Q39. The slope of the line which passes through the origin and the midpoint of the segment joining the points (0,-4) and (8,0) is A. 2 C2 D4		axis is		
Q38. The mean of first n natural numbers is A. $\frac{n+1}{2}$ C. $\frac{n(n+1)}{2}$ Q39. The slope of the line which passes through the origin and the midpoint 1 of the segment joining the points (0,-4) and (8,0) is A. 2 C2 D4		A. 1:2	B. 2:1	
Q38. The mean of first n natural numbers is A. $\frac{n+1}{2}$ B. \bar{n} C. $\frac{n(n+1)}{2}$ D. n Q39. The slope of the line which passes through the origin and the midpoint 1 of the segment joining the points (0,-4) and (8,0) is A. 2 B. $-\frac{1}{2}$ C2 D4	0.20	C1:2	D. 1:-2	1
A. $\frac{n+2}{2}$ C. $\frac{n(n+1)}{2}$ B. fi D. n Q39. The slope of the line which passes through the origin and the midpoint 1 of the segment joining the points (0,-4) and (8,0) is A. 2 C2 D4	Q38.	The mean of first n natural num	bers is	1
Q39. The slope of the line which passes through the origin and the midpoint 1 of the segment joining the points (0,-4) and (8,0) is A. 2 B. $-\frac{1}{2}$ C2 D4		A. $\frac{n+1}{2}$	B. 11	
Q39. The slope of the line which passes through the origin and the midpoint 1 of the segment joining the points (0,-4) and (8,0) is A. 2 C2 D4		C. $\frac{n(n+1)}{2}$	D. n	
of the segment joining the points (0,-4) and (8,0) is A. 2 B. $-\frac{1}{2}$ C2 D4	Q39.	The slope of the line which passes through the origin and the midpoint		1
A. 2 C2 B. $-\frac{1}{2}$ D4		of the segment joining the points (0,-4) and (8,0) is		
C2 D4 ²		A. 2	B. $-\frac{1}{2}$	
		C2	D4 ²	

Q40. The variance of 20 observations is 6.5. If each observation is increased 1 by 4, then the new variance is

A. 10.5	B. 2.5
C. 6.5	D. 2.6
	\sim

SECTION – C

(Section C consists of 10 questions of each 1mark weightage. Any 08 questions are to be attempted. Questions 46 - 50 are based on a Case- Study. The first attempted 08 questions would be evaluated.)

Q41.	The mean of the 10 observations is 18. If each observation is increased		1	
	by 2, then the new mean is			
	A. 20	B. 38		
	C. 16	D. 12		
Q42.	The mean of the 7 observation	ns is 25. If 3 is subtracted from each	1	
	observation, then the new me	an is		
	A. 21	B. 22		
	C. 23	D. 28		
Q43.	The set builder form of {1,-1.	i,-i} is	1	
	A. $x^4 - 1 = 0$	B. $x^2 - 1 = 0$		
	C. $x^2 + i = 0$	D. $x^2 - i = 0$		
Q44.	The value of $\lim_{x\to 0} \frac{\sqrt{x+1}-1}{\log(1+x)}$ is		1	
	A. 2	B. 4		
	C. 1	D ¹		
045	2 The domain of the function f	$(-1) \sqrt{2} + \frac{2}{2}$	1	
V 101	The domain of the function I	$(X) = V 9 - X^2 IS$	1	
	A. R	B. $[0, 5]$		
	C. [-3,3]	D. (-3,3)		
	Questions 46-5	U are based on a Case-Study.		
	Consider the follow	ving population and year graph.		
	Y			
	102	7		
	<u>ט</u> ב 97 ו	B (1007 07)		
	i noji	(1995, 97)		
	Å (1	985, 92)		
	87			
			>	
	O 1985	1990 1995 2000 2005 2010		
	3.75	Veare		

Based on the above information answer the following

PA-II/MATHS-XI/SET-3

Q46.	The slope of the line AB is		1
•	A. 2	B. 2	
	C. $\frac{1}{3}$	D. $\frac{1}{2}$	
Q47.	The equation of line AB is		1
	A. x+2y=1791	B. x-2y=1801	
	C. x-2y=1791	D. x-2y+1801=0	
Q48.	The population in the year 2010 is (in crores)		1
	A. 104.5	B. 119.5	
	C. 109.5	D. None	
Q49.	The equation of line perpendicular to line AB and passing through		1
	(1995, 97) is		
	A. 2x-y=4087	B. 2x+y=4087	
	C. 2x+y=1801	D. None	
Q50.	In which year the population becomes 110 crores.		1
	A. 2020	B. 2021	
	C. 2022	D. 2019	

************* ALL THE BEST *************