

## QUARTELY EXAMINATION- 2023

A

## ANSWER KEY

Class: IX

MATHEMATICS

Marks: 100

Part – I

14×1=14

Q.NO	Option	Key answers	Marks allotted
1	B	A=B	1
2	A	5	1
3	D	$\emptyset$	1
4	C	8	1
5	B	May be a rational or irrational numbers	1
6	D	$\pi$	1
7	C	$5\sqrt{3}$	1
8	A	$\sqrt{3}$	1
9	D	50	1
10	C	$\frac{2}{3}$	1
11	A	13	1
12	C	$x^2 - y^2$	1
13	A	-36	1
14	B	Interior opposite angles	1

## PART -II (10×2=20)

(Q.NO.28 -COMPULSORY)

Q.NO	KEY ANSWERS	MARKS ALLOTTED
15	{A, S, E, M, N, T}	1
	{P, R, I, N, C, A, L}	1
16	(i) $A \cap B = \{m, o\}$	1
	(ii) $B \cap A = \{m, o, \}$	1
17	$n(A \cap B) = 15$	1
	$n(U) = 65$	1

18	$\frac{9}{40} \frac{19}{80}$	2
19	$x = 2.\overline{124} = 2.124124$ $1000x = 2124.124$ $x = \frac{2124}{999}$	1 1
20	$\sqrt{30}$	2
21	$\frac{1}{\sqrt{50}} \times \frac{\sqrt{2}}{\sqrt{2}}$ $\frac{\sqrt{2}}{10}$	1 1
22	i) $9.768854 \times 10^6$ ii) $4.567891 \times 10^{-2}$	1 1
23	$x^3 - 8x^2 + 11x + 7$	2
24	$1 + 2023$ $2024$	1 1
25	$((a + b + c)^2 = a^2 + b^2 + c^2 + 2ab + 2bc + 2ca$ $x^2 + 4y^2 + 9z^2 + 4xy + 12yz + 6xz$	1 1
26	G.C.D = $7xyz^2$	2
27	$x - 89^\circ$	2
28	$A \Delta B = (A - B) \cup (B - A)$ $A \Delta B = \{6, 7, 9, 10, 12\}$	1 1

## PART -III

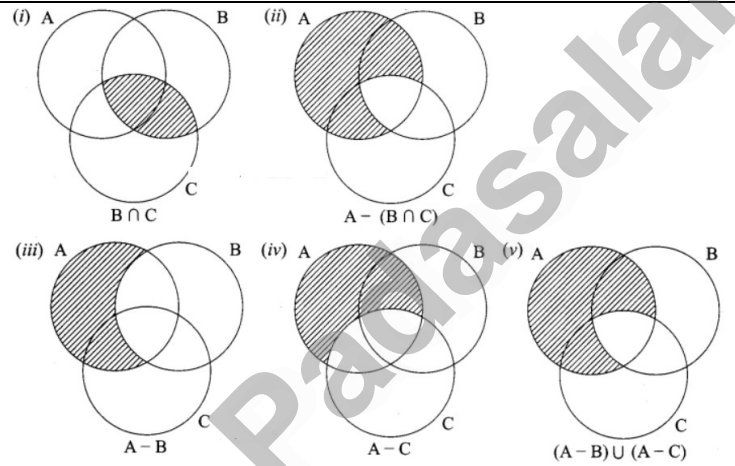
(Q.No. 42 is compulsory)

10×5 =50

29	i) $A' = \{a, c, e, g\}$ ii) $B' = \{b, c, f, g\}$ iii) $A' \cup B' = \{a, b, c, e, f, g\}$ iv) $A' \cap B' = \{c, g\}$ v) $(B')' = \{a, d, e, h\}$	1 1 1 1 1
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30	$A = \{0, 2, 4, 6, 8\}$ $B = \{2, 3, 5, 7\}$ $C = \{5, 6, 7, 8\}$ $B \cap C = \{5, 7\}$ $A \cup (B \cap C) = \{0, 2, 4, 5, 6, 7, 8\}$ $(A \cup B) \cap (A \cup C) = \{0, 2, 4, 5, 6, 7, 8\}$	1 1 1 2
31	<p>i) 185 ii) 141 iii) 326</p>	1 1 1 2 1 1 1
32	FOR EACH NUMBER LINE (1 MARK) PLOTTING NUMBER	4 1
33	a) i) $2^5$ ii) $(2^5)^3$ or $2^{\frac{5}{3}}$ b) 243	1 1 3
34	L.C.M = 12 $\sqrt[3]{2} = \sqrt[3]{16}$ $\sqrt[4]{4} = \sqrt[3]{4096}$ $\sqrt[3]{3} = \sqrt[3]{27}$ Ascending order : $\sqrt[3]{2}, \sqrt[3]{3}, \sqrt[3]{4}$	1 1 1 1 1
35	$\frac{\sqrt{7}-2}{\sqrt{7}+2} \times \frac{\sqrt{7}-2}{\sqrt{7}-2}$	1 1



40	$x^2 + \frac{1}{x^2} = (x + \frac{1}{x})^2 - 2$ $(x + \frac{1}{x}) = 4$ $x^3 + \frac{1}{x^3} = (x + \frac{1}{x})^3 - 3(x + \frac{1}{x})$ $4^3 - 3(4)$ $52$	1 1 1 1 1
41	$(x+35)^\circ + (2x-5)^\circ = (4x-15)^\circ$ $X=45^\circ$ $\angle A = 80^\circ$ $\angle B = 85^\circ$ $\angle C = 15^\circ$	1 1 1 1 1
42		2          3

## PART -IV

Q.No	Key answer	Marks allotted
43	Rough diagram Construction of triangle Construction of centroid	1 4 3
	Rough diagram Construction of triangle Construction of altitudes Locating orthocentre	1 4 2 1

Q.NO	Key answer	Marks allotted																
44	<table border="1" data-bbox="354 401 1187 510"> <tr> <td>X</td> <td>-1</td> <td>0</td> <td>1</td> </tr> <tr> <td>Y</td> <td>-4</td> <td>-1</td> <td>2</td> </tr> </table> <p data-bbox="354 562 824 594">Points to be plotted :(-1,-4),(0,-1), (1,2)</p> <p data-bbox="354 615 423 646">Scale</p> <p data-bbox="354 667 565 699">Joining the points</p>	X	-1	0	1	Y	-4	-1	2	<p data-bbox="1271 401 1295 432">4</p> <p data-bbox="1271 453 1295 485">2</p> <p data-bbox="1271 506 1295 537">1</p> <p data-bbox="1271 558 1295 590">1</p>								
X	-1	0	1															
Y	-4	-1	2															
	<p data-bbox="354 726 570 758">plotting the points</p> <p data-bbox="354 779 565 810">Joining the points</p> <p data-bbox="354 831 423 863">Scale</p> <table border="1" data-bbox="354 873 662 982"> <tr> <td>X</td> <td>-1</td> <td>0</td> <td>1</td> </tr> <tr> <td>y</td> <td>-1</td> <td>0</td> <td>-1</td> </tr> </table> <p data-bbox="354 1035 418 1066">Y=-3</p> <table border="1" data-bbox="354 1083 662 1192"> <tr> <td>X</td> <td>-1</td> <td>0</td> <td>1</td> </tr> <tr> <td></td> <td>-3</td> <td>-3</td> <td>-3</td> </tr> </table> <p data-bbox="354 1245 548 1276">Solution (-3, -3)</p>	X	-1	0	1	y	-1	0	-1	X	-1	0	1		-3	-3	-3	<p data-bbox="1271 726 1295 758">2</p> <p data-bbox="1271 779 1295 810">1</p> <p data-bbox="1271 831 1295 863">1</p> <p data-bbox="1271 926 1295 957">1</p> <p data-bbox="1271 1035 1295 1066">1</p> <p data-bbox="1271 1136 1295 1167">1</p> <p data-bbox="1271 1245 1295 1276">1</p>
X	-1	0	1															
y	-1	0	-1															
X	-1	0	1															
	-3	-3	-3															

காலாண்டுத்தேர்வு -2023

கணிதம்

வகுப்பு: IX

விடைக்குறிப்பு

பகுதி -I

(14×1=14)

வினாஎண்	விருப்பத் தேர்வு	விடை	மதிப்பெண்
1	B	A=B	1
2	A	5	1
3	D	0	1
4	C	8	1
5	B	ஒரு விகிதமுறு அல்லது விகிதமுறா எண்ணாக இருக்கலாம்	1
6	D	$\pi$	1
7	C	$5\sqrt{3}$	1
8	A	$(\sqrt{3})$	1
9	D	50	1
10	C	$\frac{2}{3}$	1
11	A	13	1
12	C	$x^2 - y^2$	1
13	A	-36	1
14	B	உள்ளெதிர்க் கோணங்கள்	1

## பிரிவு-II (10×2=20)

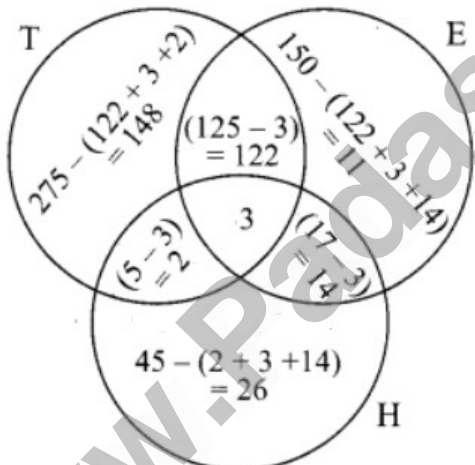
## 28- வது வினா கட்டாய வினா

வினா எண்	விடை	மதிப்பெண்
15	{A,S,E,M,N,T} {P,R,I,N,C,A,L}	1 1
16	(i) $A \cap B = \{m,o\}$ (ii) $B \cap A = \{m,o\}$	1 1
17	$n(A \cap B) = 15$ $n(U) = 65$	1 1
18	$\frac{9}{40}, \frac{19}{80}$	2
19	$x = 2.\overline{124} = 2.124124$ $1000x = 2124.124$ $x = \frac{2124}{999}$	1 1
20	$\sqrt{30}$	2
21	$\frac{1}{\sqrt{50}} \times \frac{\sqrt{2}}{\sqrt{2}}$ $\frac{\sqrt{2}}{10}$	1 1
22	iii) $9.768854 \times 10^5$ iv) $4.567891 \times 10^{-2}$	1 1
23	$x^3 - 8x^2 + 11x + 7$	2
24	1 + 2023 2024	1 1
25	$((a + b + c)^2 = a^2 + b^2 + c^2 + 2ab + 2bc + 2ca$ $x^2 + 4y^2 + 9z^2 + 4xy + 12yz + 6xz$	1 1
26	G.C.D = $7xyz^2$	2
27	= 89	2
28	$A \Delta B = (A - B) \cup (B - A)$ $A \Delta B = \{6,7,9,10,12\}$	1 1



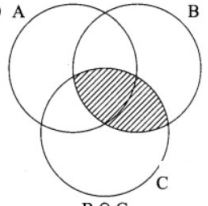
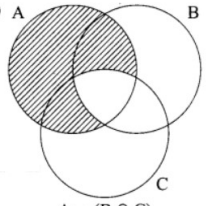
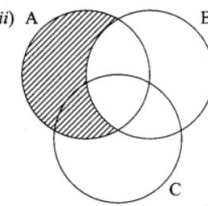
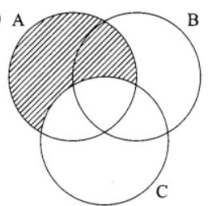
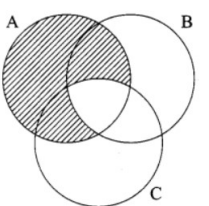
## பிரிவு-III (10×5=50)

## 42- வது வினா கட்டாய வினா

29	i) $A' = \{a,c,e,g\}$ ii) $B' = \{b,c,f,g\}$ iii) $A' \cup B' = \{a,b,c,e,f,g\}$ iv) $A' \cap B' = \{c,g\}$ v) $(B')' = \{a,d,e,h\}$	1 1 1 1 1
30	$A = \{0,2,4,6,8\}$ $B = \{2,3,5,7\}$ $C = \{5,6,7,8\}$ $B \cap C = \{5,7\}$ $A \cup (B \cap C) = \{0,2,4,5,6,7,8\}$ $(A \cup B) \cap (A \cup C) = \{0,2,4,5,6,7,8\}$	1 1 1 2
31	 <p>iv) 185 v) 141 vi) 326</p>	1 1 1 2 1 1 1
32	FOR EACH NUMBER LINE (1 MARK)  PLOTTING NUMBER	4  1
33	a) i) $2^5$	1 1

	ii) $(2\frac{3}{5})^3$ or $2\frac{3}{5}$ b) 243	3
34	மீ.சி.ம =12 $\sqrt[3]{2} = \sqrt[3]{16}$ $\sqrt[3]{4} = \sqrt[3]{4096}$ $\sqrt[3]{3} = \sqrt[3]{27}$ ஏறுவரிசை : $\sqrt[3]{2}, \sqrt[3]{3}, \sqrt[3]{4}$	1 1 1 1 1
35	$\frac{\sqrt{7}-2}{\sqrt{7}+2} \times \frac{\sqrt{7}+2}{\sqrt{7}-2}$ $= \frac{(\sqrt{7}-2)^2}{(\sqrt{7})^2-2^2}$ $\frac{7+4-4\sqrt{7}}{7-4} = \frac{11-4\sqrt{7}}{3}$ $a = \frac{-4}{3}$ $b = \frac{11}{3}$	1 1 1 2
36	(x-2) காரணி தொகுமுறை வகுத்தல் மற்ற காரணிகள் (x+3), (x-4)	1 2 2
37	$3x-4y-10=0$ : $4x+3y-5$ குறுக்குப் பெருக்கல் $\frac{x}{50} = \frac{y}{-25} = \frac{1}{25}$ தீர்வுகள் $x=2$ $y=-1$	1 1 1 1 1
38	$x+y=12 \rightarrow (1)$ $2x-y=3 \rightarrow (2)$ $X=5$ $Y=7$ Fraction = $\frac{1}{5}$	1 1 1 1 1

39	$  \begin{array}{r}  4y^2 - 6y + 5 \\  2y - 1 \overline{) 8y^3 - 16y^2 + 16y - 15} \\  \underline{8y^3 - 4y^2} \phantom{+ 16y - 15} \\  (-) \phantom{8y^3} (+) \\  - 12y^2 + 16y \phantom{- 15} \\  \underline{- 12y^2 + 6y} \phantom{- 15} \\  (+) \phantom{- 12y^2} (-) \\  10y - 15 \\  \underline{10y - 5} \\  (-) \phantom{10y} (+) \\  - 10  \end{array}  $ <p>∴ The quotient = <math>4y^2 - 6y + 5</math> The remainder = <math>-10</math></p>	2  2  1
40	$x^2 + \frac{1}{x^2} = (x + \frac{1}{x})^2 - 2$ $(x + \frac{1}{x}) = 4$ $x^3 + \frac{1}{x^3} = (x + \frac{1}{x})^3 - 3(x + \frac{1}{x})$ $4^3 - 3(4)$ $52$	1  1  1  1 1
41	$(x+35)^\circ + (2x-5)^\circ = (4x-15)^\circ$ $X=45^\circ$ $\angle A = 80^\circ$ $\angle B = 85^\circ$ $\angle C = 15^\circ$	1  1  1 1 1

42	 <p>(i) <math>B \cap C</math></p>	2
	 <p>(ii) <math>A - (B \cap C)</math></p>	
	 <p>(iii) <math>A - B</math></p>	3
	 <p>(iv) <math>A - C</math></p>	
	 <p>(v) <math>(A - B) \cup (A - C)</math></p>	

## PART -IV

Q.No	Key answer	Marks allotted
43	உதவிப்படம்	1
	முக்கோணம் வரைதல்	4
	நடுக்கோடுவரைதல்	3
	உதவிப்படம்	1
	முக்கோணம் வரைதல்	4
	சுற்றுவட்டமையம் காணுதல்	2
	சுற்றுவட்டம் வரைதல்	1

Q.N0	Key answer	Marks allotted																
44	<p>அட்டவணை</p> <table border="1"> <tr> <td>X</td> <td>-1</td> <td>0</td> <td>1</td> </tr> <tr> <td>Y</td> <td>-4</td> <td>-1</td> <td>2</td> </tr> </table> <p>நேர்கோடுகள் வரைதல்</p> <p>புள்ளிகளைக் குறித்தல் :(-1,-4),(0,-1), (1,2)</p>	X	-1	0	1	Y	-4	-1	2	<p>4</p> <p>2</p> <p>1</p> <p>1</p>								
X	-1	0	1															
Y	-4	-1	2															
	<p>புள்ளிகளைக் குறித்தல்</p> <p>நேர்கோடுகள் வரைதல்</p> <p>X அச்சு Y அச்சு, அளவுத் திட்டம் :</p> <table border="1"> <tr> <td>x</td> <td>-1</td> <td>0</td> <td>1</td> </tr> <tr> <td>y</td> <td>-1</td> <td>0</td> <td>-1</td> </tr> </table> <p>Y=-3</p> <table border="1"> <tr> <td>x</td> <td>-1</td> <td>0</td> <td>1</td> </tr> <tr> <td></td> <td>-3</td> <td>-3</td> <td>-3</td> </tr> </table> <p>தீர்வு :(-3,-3)</p>	x	-1	0	1	y	-1	0	-1	x	-1	0	1		-3	-3	-3	<p>2</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>
x	-1	0	1															
y	-1	0	-1															
x	-1	0	1															
	-3	-3	-3															