

**SHRI VIDHYABHARATHI MATRIC
HIGHER SECONDARY SCHOOL,
SAKKARAMPALAYAM, TIRUCHENGODE,
NAMAKKAL.**

CELL: 9965531727



MARCH – 2025

XI - MATHEMATICS

TENTATIVE ANSWER KEY

PREPARED BY

DEP OF MATHEMATICS

MARK ANALYSIS

(WITHOUT CHOICE)

PART	Questions	Total Questions	Book Back Questions	Interior/Creative Questions	Total Marks
I	1 Mark	20	16	4	20
II	2 Marks	10	8	2	20
III	3 Marks	10	8	2	30
IV	5 Marks	14	12	2	70
Total Marks			116	24	140
Percentage			83%	17%	100%

TYPE - A

1. d) $[2, \infty)$
2. a) does not exist
3. c) $n(n+1)$
4. a) $y = e^x$
5. c) 3
6. a) Right triangle
7. d) 5^5
8. d) 90°
9. a) 6
10. a) $-1/\log 3$
11. d) $\frac{1}{90} \cos x^\circ$
12. c) $2^{3x+5}/3 \log_2 + C$
13. a) $\alpha + 3\beta = 11$
14. d) $P(A \cap \bar{B}) + P(\bar{A} \cap B)$
15. a) $5/12$
16. a) value does not exist
17. b) $k^3/\sqrt{2}$
18. b) $4x - 3y - 7 = 0$
19. d) 7
20. c) $10/21$

TYPE - B.

1. d) $P(A \cap \bar{B}) + P(\bar{A} \cap B)$
2. c) 3
3. d) $[2, \infty)$
4. c) $n(n+1)$
5. a) $5/12$
6. c) $10/21$
7. a) value does not exist
8. a) does not exist
9. d) 7
10. a) Right triangle
11. d) 5^5
12. b) $4x - 3y - 7 = 0$
13. c) $2^{3x+5}/3 \log_2 + C$
14. a) $y = e^x$
15. a) $\alpha + 3\beta = 11$
16. d) 90°
17. a) $-1/\log 3$
18. b) $k^3/\sqrt{2}$
19. d) $\frac{1}{90} \cos x^\circ$
20. a) 6

2 MARKS

21. $\vec{PO} + \vec{OQ} = \vec{QO} + \vec{OR}$
 $\vec{OQ} - \vec{OP} = \vec{OR} - \vec{OQ}$
 $\vec{PQ} = \vec{QR}$
 $PQ = QR$ and $PQ \parallel QR$.
 The point P, Q, R collinear

22. $P(A) + P(B) + P(C) + P(D) = 1$
 it is permissible

23. $y = e^{\sin x} \quad \frac{dy}{dx} = e^{\sin x} \cdot \cos x$

24. $\lim_{n \rightarrow a} \frac{x^n - a^n}{x - a} = na^{n-1}$
 $n(2)^{n-1} = 12 \quad \boxed{n=3}$

25. $A = \frac{1}{2} \begin{bmatrix} 1 & 9 & 25 \\ 0 & 4 & 16 \end{bmatrix}$

26. $\begin{vmatrix} 2 & 3 & 4 \\ 5 & 6 & 8 \\ 6x & 9x & 12x \end{vmatrix} = 3x \begin{vmatrix} 2 & 3 & 4 \\ 5 & 6 & 8 \\ 2 & 3 & 4 \end{vmatrix}$
 $= 0 \quad [R_1 \equiv R_3]$

27. $23x < 100, \quad x \leq \frac{100}{23}$

(i) $x = 1, 2, 3, 4,$

(ii) $x = \{\dots, -4, -3, -2, -1, 0, 1, \dots\}$

28. $a_1 = 2, a_2 = 2, a_3 = 4,$
 $a_4 = 4, a_5 = 6, a_6 = 6$
 $2, 2, 4, 4, 6, 6, \dots$

29. $h = 9 \cos \alpha, \quad k = 9 \sin \alpha.$
 locus is $x^2 + y^2 = 81$

30. $3! + 4! + \dots + 20!$
 $3! = 6, 4! = 24, 5! = 120$
 $n \geq 5! \text{ means } = 0$
 $3! + 4! + \dots + 20! = 0.$

3 MARKS

31. $-1 \leq \cos x \leq 1$

$\frac{1}{4} \leq \frac{1}{1-3\cos x} \leq \frac{1}{2}$

The range is
 $(-\infty, -\frac{1}{2}] \cup [\frac{1}{4}, \infty)$

32. $\sqrt{x^2 - x - 2} = x + 1$
 $x^2 - x - 2 = (x+1)^2$
 $3x = -3 \quad \boxed{x = -1}$

33. LHS = $\sin 45^\circ \cos \theta + \cos 45^\circ \sin \theta$
 $= [\sin 45^\circ \cos \theta + \cos 45^\circ \sin \theta]$
 $= \sqrt{2} \sin \theta = \text{RHS.}$

34. $(n+2)(n+1)n(n-1) = 42n(n-1)$
 $n^2 + 3n - 40 = 0$
 $\boxed{n = 5} \quad n = -8 \text{ not possible}$

35. $(102)^4 = (100+2)^4$
 $= (100)^4 + 4C_1(100)^3 2^1 + \dots + 4C_4(100)^0 2^4$
 $= 10,82,43,216$

36. The slope AB = $\frac{1}{2}$
 The slope BC = $\frac{1}{2}$.
 AB and BC are parallel
 A, B and C are collinear.

37. $\vec{a}$ is Parallel to $\vec{b} \times \vec{c}$
 $\vec{a} = \pm \lambda (\vec{b} \times \vec{c}) \quad \boxed{\lambda = \frac{2}{3}}$
 $\vec{a} = \pm \frac{2}{3} (\vec{b} \times \vec{c})$

38. $\int \cos 5x \sin 3x \, dx$
 $= \frac{1}{2} \left[-\frac{\cos 8x}{8} + \frac{\cos 2x}{2} \right] + c$

39. $P(A) = \frac{8C_2}{256} = \frac{7}{64}$
 $P(B) = \frac{8C_0}{256} + \frac{8C_1}{256} + \frac{8C_2}{256} = \frac{37}{256}$

40. $y = \cos^{-1}(2\cos^2 x - 1)$
 $y = \cos^{-1}(\cos 2x)$
 $y = 2x$
 $\boxed{\frac{dy}{dx} = 2}$

Part-IV

$$41) (a) \frac{x^2+x+1}{x^2-5x+6} = 1 + \frac{6x-5}{x^2-5x+6}$$

$$\frac{6x-5}{x^2-5x+6} = \frac{A}{x-3} + \frac{B}{x-2}$$

$$x=3 \Rightarrow A=13, x=2 \Rightarrow B=-7$$

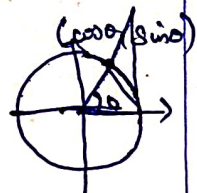
$$\therefore \frac{x^2+x+1}{x^2-5x+6} = 1 + \frac{13}{x-3} - \frac{7}{x-2}$$

$$(1-x^2)y' - xy = 1$$

$$(1-x^2)y'' - 2xy' - (xy' + y) = 0$$

$$(1-x^2)y_2 - 3xy_1 - y = 0$$

$$43) (a) \lim_{\theta \rightarrow 0} \frac{\sin \theta}{\theta}$$



$$\frac{\tan \theta}{2} \geq \frac{\theta}{2} \geq \frac{\sin \theta}{2}$$

$$\div \frac{2}{\sin \theta} \Rightarrow \frac{1}{\cos \theta} \geq \frac{\theta}{\sin \theta} \geq 1$$

Taking reciprocal

$$\cos \theta \leq \frac{\sin \theta}{\theta} \leq 1$$

$$\lim_{\theta \rightarrow 0} \cos \theta \leq \lim_{\theta \rightarrow 0} \frac{\sin \theta}{\theta} \leq 1$$

$$1 \leq \lim_{\theta \rightarrow 0} \frac{\sin \theta}{\theta} \leq 1$$

$$\Rightarrow \lim_{\theta \rightarrow 0} \frac{\sin \theta}{\theta} = 1$$

$$49) (b) \text{ Given } \sqrt{3}x - y + 4 = 0$$

(i) Slope-intercept form

$$y = \sqrt{3}x + 4$$

(ii) Intercept form

$$\frac{x}{-4/\sqrt{3}} + \frac{y}{4} = 1$$

(iii) Normal form

$$x \cos \frac{5\pi}{6} + y \sin \frac{5\pi}{6} = 2$$

$$(b) \text{ Let } P(A_1) = \frac{60}{100} \quad P(B/A_1) = \frac{2}{100}$$

$$P(A_2) = \frac{40}{100} \quad P(B/A_2) = \frac{4}{100}$$

$$P(B) = \frac{60 \times 2}{100 \times 100} + \frac{40 \times 4}{100 \times 100} = \frac{280}{10000}$$

$$P(B) = 0.028$$

$$42) (a) \text{ LHS } \Rightarrow \frac{\cot \theta \cos \theta \cos \theta}{-\cos \theta (-\tan \theta) \operatorname{cosec} \theta}$$

$$= \frac{\cot \theta \cos^2 \theta}{\cos \theta \times \frac{\sin \theta}{\cos \theta} \times \frac{1}{\sin \theta}} = \cot \theta \cos^2 \theta \rightarrow \text{RHS}$$

$$(b) \text{ Given } y = \frac{\sin^{-1} x}{\sqrt{1-x^2}}$$

$$\sqrt{1-x^2} y = \sin^{-1} x$$

$$(1-x^2)y^2 = (\sin^{-1} x)^2$$

$$(1-x^2)2yy' + y^2(-2x) = 2\sin^{-1} x \cdot \frac{-x}{\sqrt{1-x^2}}$$

$$44) (a) \sqrt[3]{x^3+7} - \sqrt[3]{x^3+4}$$

$$= x \left(1 + \frac{7}{x^3}\right)^{1/3} - x \left(1 + \frac{4}{x^3}\right)^{1/3}$$

$$\approx x \left[\left(1 + \frac{1}{3} \frac{7}{x^3}\right) - \left(1 + \frac{1}{3} \frac{4}{x^3}\right) \right]$$

$$\approx \frac{1}{x^2}$$

$$44) (b) k(x-1)^2 = 5x-7$$

$$kx^2 - 2kx + k - 5x + 7 = 0$$

$$S.R \Rightarrow 3x = \frac{2k+5}{3k} \Rightarrow x = \frac{2k+5}{3k}$$

$$P.R \Rightarrow 2x^2 = \frac{k+7}{k}$$

$$\Rightarrow 2\left(\frac{2k+5}{3k}\right)^2 = \frac{k+7}{k}$$

$$\Rightarrow k^2 + 23k - 50 = 0$$

$$\Rightarrow (k-2)(k+25) = 0$$

$$\Rightarrow k = 2, k = -25$$

$$45) (a) \tan 20^\circ \tan 40^\circ \tan 60^\circ \tan 80^\circ$$

$$= \tan 60^\circ \left[\tan 20^\circ \tan (60^\circ - 20^\circ) \tan (60^\circ + 20^\circ) \right]$$

$$= \sqrt{3} \left[\tan 20^\circ \left(\frac{\tan 60^\circ - \tan 20^\circ}{1 + \tan 60^\circ \tan 20^\circ} \right) \left(\frac{\tan 60^\circ + \tan 20^\circ}{1 - \tan 60^\circ \tan 20^\circ} \right) \right]$$

$$= \sqrt{3} \left[\tan 20^\circ \left(\frac{\tan^2 60^\circ - \tan^2 20^\circ}{1 - \tan^2 60^\circ \tan^2 20^\circ} \right) \right]$$

$$= \sqrt{3} \left[\tan 20^\circ \left(\frac{3 - \tan^2 20^\circ}{1 - 3 \tan^2 20^\circ} \right) \right]$$

$$= \sqrt{3} \left[\frac{3 \tan 20^\circ - \tan^3 20^\circ}{1 - 3 \tan^2 20^\circ} \right]$$

$$= \sqrt{3} [\tan 3(20^\circ)]$$

$$= \sqrt{3} \tan 60^\circ$$

$$= \sqrt{3} \times \sqrt{3} = 3$$

$$45) (b) \int \frac{dx}{\sqrt{x^2 + 5x + 4}} = \int \frac{dx}{\left(x + \frac{5}{2}\right)^2 - \left(\frac{3}{2}\right)^2}$$

$$= \log \left| \left(x + \frac{5}{2}\right) + \sqrt{x^2 + 5x + 4} \right| + c$$

46) (a)

Only known

language A = 39



$$\therefore \text{No of required Person} = 5000 \times \frac{39}{100}$$

$$= 1950$$

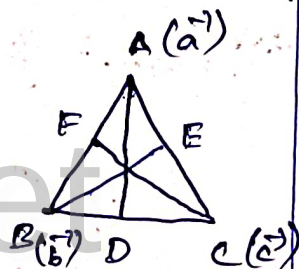
(b)

$$\vec{OG}_1 = \frac{\vec{a} + \vec{b} + \vec{c}}{3}$$

$$\vec{OG}_2 = \frac{\vec{a} + \vec{b} + \vec{c}}{3}$$

$$\vec{OG}_3 = \frac{\vec{a} + \vec{b} + \vec{c}}{3}$$

$\Rightarrow$ Medians are concurrent



47) (a)

$$P(n) = 1^3 + 2^3 + \dots + n^3 = \left(\frac{n(n+1)}{2} \right)^2$$

$$n=1 \Rightarrow P(1) = 1^3 = 1 = \left(\frac{1(1+1)}{2} \right)^2$$

$$n=k \Rightarrow P(k) = \left(\frac{k(k+1)}{2} \right)^2$$

$$n=k+1 \Rightarrow P(k+1) = P(k) + (k+1)^3$$

$$= \left(\frac{(k+1)(k+2)}{2} \right)^2$$

$\therefore$ By principle of mathematical induction

$$1^3 + 2^3 + \dots + n^3 = \left(\frac{n(n+1)}{2} \right)^2$$

$$47) (b) \begin{matrix} \text{LHS} \Rightarrow \end{matrix} \begin{vmatrix} 1+a & 1 & 1 \\ 1 & 1+b & 1 \\ 1 & 1 & 1+c \end{vmatrix} = \begin{vmatrix} a-b & 0 \\ 0 & b-c \\ 1 & 1 & 1+c \end{vmatrix} \begin{matrix} R_1 \rightarrow R_1 - R_2 \\ R_2 \rightarrow R_2 - R_3 \end{matrix}$$

$$= a(b(1+c)+c)+b(0+c)$$

$$= a[b+bc+c]+bc$$

$$= ab+abc+ac+bc$$

$$= abc \left[\frac{1}{c} + 1 + \frac{1}{b} + \frac{1}{a} \right]$$

$$= abc \left[1 + \frac{1}{a} + \frac{1}{b} + \frac{1}{c} \right] \Rightarrow \text{RHS.}$$

Padasalai.Net



SVB NEET/JEE COACHING CENTRE

(English Medium & Tamil Medium)

SAKKARAMPALAYAM, AGARAM POST, ELACHIPALAYAM,
TIRUCHENGODE TK, NAMAKKAL DT - 637 202, TAMIL NADU.

CELL : 99655 31727, 94422 88402, 94428 94471, 99655 35967, 8122169221

மாநிலத்தில் முதலிடம்



2023-2024 ஆம் கல்வியாண்டில் தமிழ் வழியில் பயின்ற மாணவி மாநில அளவில் முதலிடம் பிடித்து சாதனை

TAMIL MEDIUM - 7.5%

STATE 1ST
மாநிலத்தில் முதலிடம்

BOTANY - 180/180
ZOOLOGY - 180/180
CHEMISTRY - 162/180
PHYSICS - 147/180



ROOBIKA P

MADRAS MEDICAL COLLEGE (MMC)
CHENNAI



ROLL NO : 4108100175
APP NO : 240410091033



ENGLISH MEDIUM 92.5%



**SVB
NEET CAMPUS**



நாமக்கல் மாவட்டத்திலேயே குறைந்த கல்விக் கட்டணத்தில் CRASH COURSE, 1 YEAR NEET REPEATERS, RE-REPEATERS
பயிற்சி அளிக்கப்படுகிறது. SEPARATE HOSTEL FACILITY AVAILABLE



MBBS
ROOBICA P
MADRAS MEDICAL COLLEGE (MMC), CHENNAI



MBBS
BARANTHARAN S
STANLEY MEDICAL COLLEGE, CHENNAI



MBBS
NITHIYAPRAGASH R
GOVERNMENT MEDICAL COLLEGE, PUDUKOTTAI



MBBS
NAGARAJAN E
VENKATESHWARA MEDICAL COLLEGE, CHENNAI



MBBS
HARIHARAN S
VENKATESHWARA MEDICAL COLLEGE, CHENNAI



MBBS
KRISHNA KAARUNYA E
KARPAGAM FACULTY OF MEDICAL, COIMBATORE



MBBS
JOSHVA NIMAL L
PSS INSTITUTE OF SCIENCES, COIMBATORE



MBBS
KRUTHIKA S
MELMARUVATHUR ADHIPARASAKTHI INSTITUTE



MBBS
MR.DHANISHYA
MUTHUKUMARASAMY MEDICAL COLLEGE



MBBS
DEVASREE A
VENKATESHWARA MEDICAL COLLEGE, CHENNAI



BDS
VASANTHAKUMAR T
PRIYADHARSHINI DENTAL COLLEGE & HOSPITAL, CHENNAI



MBBS
INBARAJAN V
INDRA MEDICAL COLLEGE, TRUVALLUR



MBBS
SANTHOSH M
GOVT. MEDICAL COLLEGE, MADURAI



MBBS
VISHWESHVARAN G
GOVT. MEDICAL COLLEGE, KOVAI



MBBS
SUNIL KUMAR K
GOVT. MEDICAL COLLEGE, MADURAI



MBBS
DHARANEESH M R
GOVT. MEDICAL COLLEGE, NAGAPATTINAM



MBBS
AISHWARYA S
VINAYAGA MISSIONS, SALEM



MBBS
RAMKI R
PSV MEDICAL COLLEGE, KANCHEEPURAM



MBBS
SUKUMAR L
STANLEY MEDICAL COLLEGE, CHENNAI



MBBS
DHARANEESH V
VIVEKANANDA MEDICAL CARE HOSPITAL, TRICHENGODE



MBBS
MAITHILI C
GOVT. MOHAN KUMARAMANGALAM MEDICAL COLLEGE, SALEM



MBBS
NIVEDHA K
GOVT. MEDICAL COLLEGE, THANJAVUR



MBBS
RAGHULPRANAV S
GOVT. MEDICAL COLLEGE, DHARMAPURI



MBBS
MANIVASAGAM R
K.A.P.V GOVT. MEDICAL COLLEGE, TRICHY



MBBS
PERIYARNITHI M
K.A.P.V GOVT. MEDICAL COLLEGE, TRICHY



MBBS
BHUVANARAGAVAN M
GOVT. MEDICAL COLLEGE, THOOTHUKUDI



MBBS
R.KISHORE
GOVT. MOHAN KUMARAMANGALAM MEDICAL COLLEGE, SALEM



MBBS
R.S.MRUTHULA
GOVT. MEDICAL COLLEGE, VELLORE



MBBS
KATHIRESAN V
GOVT. MEDICAL COLLEGE, KARUR



MBBS
SHARJITH S
GOVT. MEDICAL COLLEGE, KOVAI



MBBS
DHANYAPRIYA K
GOVT. MEDICAL COLLEGE, KOVAI



MBBS
AASKA N
JKM DENTAL COLLEGE, KOMARAPALAYAM



MBBS
PRANAV K
VELAMMAL MEDICAL COLLEGE, MADURAI



MBBS
DEEPIKA R
VELAMMAL MEDICAL COLLEGE, MADURAI



MBBS
SUREKHA S
KARAKUDI CHETTIAD MEDICAL COLLEGE, CHENNAI



MBBS
VASANTHAKUMAR S
GOVT. MOHAN KUMARAMANGALAM MEDICAL COLLEGE, SALEM



MBBS
PRADEESH M
VINAYAGA MISSION MEDICAL COLLEGE, KARAKAL



MBBS
LOKESHWARAN S
GOVT. MEDICAL COLLEGE, VELLORE



MBBS
ARUNKUMAR M
GOVT. MEDICAL COLLEGE, VRUDHUNAGAR



MBBS
M.HRISHRAJ
GOVT. MEDICAL COLLEGE, ARIYALUR



MBBS
KALAIVANI A
SRI MUTHUKUMARAN MEDICAL COLLEGE, CHENNAI



MBBS
SAKTHINEHA R
KARPAGAM MEDICAL COLLEGE, KOVAI



MBBS
NAGARAJ G
INDRA GANDHI GOVT. MEDICAL COLLEGE, PUDUCHERRY



MBBS
SELVIA
GOVT. MEDICAL COLLEGE, THOOTHUKUDI



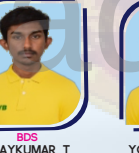
MBBS
MONIKA S
GOVT. MEDICAL COLLEGE, VELLORE



MBBS
ANBARASAN B
VINAYAGA MISSION MEDICAL COLLEGE, KARAKAL



MBBS
VARSHA S
GOVT. MEDICAL COLLEGE, VILLUPURAM



BDS
AJAYKUMAR T
RAJA DENTAL MEDICAL COLLEGE, TRUNELVELI



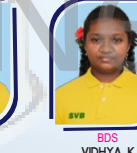
BDS
YOGALAKSHMI M
DHANALAKSHMI SRINIVASAN DENTAL COLLEGE, PERAMBALUR



BDS
DHARSHINI C
BEST GENERAL MEDICAL COLLEGE, MADURAI



BDS
ARI P
PRIYADHARSHINI DENTAL COLLEGE, TRUVALLUR



BDS
DHARSHINI S
VINAYAGA MISSIONS SANKARACHARIYAR DENTAL COLLEGE, ARTANLOOR



BDS
VIDHYA K
NAGA COLLEGE, PERUNDURAI



BSMS
SHRI DHAVA DHARSHINI
A.T.S.V.S SIDHA MEDICAL COLLEGE, KANTAKUMARI

HARINI G
SHREE VENKATESHWARA COLLEGE OF PARAMEDICAL SCIENCE, ERODE

BOYS HOSTEL

GIRLS HOSTEL

CRASH COURSE

வகுப்புகள் தொடங்கும் நாள்
26.03.2025

CLASSES STARTS FROM
26.03.2025

2025 - 2026 ஆம் கல்வியாண்டிற்கான

CRASH COURSE / REPEATER அடமிஷன் நடைபெறுகிறது

Tamil Medium 7.5% Students
Rs.15000 +Hostel Fee

English Medium 92.5% Students
Rs.20000 +Hostel Fee

CELL : 99655 31727, 94422 88402, 94428 94471, 8122169221.

ஆண், பெண் இருபாலருக்கும் தனித்தனி விடுதி வசதி உண்டு.