BHARTIYA SHIKSHA BOARD MARKING SCHEME SAMPLE QUESTION PAPER 2025-26 CLASS - XII MATHEMATICS (149)

1. (B) symmetric	
2. (C) 29A.	
3. (A) skew symmetric	
4 (D) 2.	
5. (D) 2.	
6. (B) <u>-3</u>	
$7. (D) \frac{\sqrt{4-x^2}}{15\sqrt{3}}$	
8. (B) (0.2)	
9 (c) log 1, -ex +c.	
10 (A) 5	
11 (A) 11 sq. units	
12. (c) 1.	
$13. (B) \qquad xy = c.$	
14 (B) 1	
15. (C) 90°	
16. (c) 2,-1,3	
17 (D) <u>1</u>	
18. (A) <u>J</u>	
12	
20 (C) Regeon is false.	
TOWN BYTISE,	

21.	tan (sec 2) + cot (cosec 3)	
	let secte=x and cosect=y	1/2
	Secx=2 and cossecy=3 Given expression = tanx + corfy	1/2
	$= \sec^2 x - 1 + \cos^2 y - 1$ $= 4 - 1 + 9 - 1 = 11$	1
	Cos (-1) -2 sin (1) +3 cos (-1) -4 tan (-1)	
	$= (\Pi - \Pi 73) - 2(\Pi / 6) + 3(\Pi - \Pi / 4) + 4 \Pi / 4$	1
	= 2173 - 173 + 9774 + 15	
	$= \frac{8 - 4 + 27 + 12}{12} \Im$	A
	$=\frac{431i}{12}$	1.
22	$A = \begin{bmatrix} 2 & -3 \\ 3 & 4 \end{bmatrix} : A = \begin{bmatrix} 2 & -3 \\ 3 & 4 \end{bmatrix} \begin{bmatrix} 2 & -3 \\ 3 & 4 \end{bmatrix} = \begin{bmatrix} -5 & -18 \\ 18 & 7 \end{bmatrix}$	
	$A^{2} - 6A + 17I = \begin{bmatrix} -5 - 18 \\ 18 \end{bmatrix} - \begin{bmatrix} 12 - 18 \\ 18 \end{bmatrix} + \begin{bmatrix} 17 & 0 \\ 18 & 24 \end{bmatrix} + \begin{bmatrix} 17 & 0 \\ 0 & 17 \end{bmatrix}$	<u>k</u>
		1/2
	OR	
3	$\Delta ABC = \frac{1}{2} \begin{vmatrix} 3 & 1 \\ 9 & 3 \end{vmatrix} = \frac{1}{2} \left(3(-4) - 1(4) + 1(48) \right) = 16 sq. U$	
>		

23.	V= 4/3 1183 and surface area s= 41182	Orivia
	$\frac{dV}{dx} = 4118^2 \text{and} \frac{ds}{dx} = 81182$	1
	AV 402 8	
	7 75 - 312 - 2	1/2
	Af $v=2$, $dv=\frac{2}{2}=1$ em.	1/2
24.	マナトマニの ⇒ マナラニーで	
	: (日子)= コーコーコーコーコーコーコー	
	$=) \vec{Q} \cdot \vec{b} = 49 - 9 - 25 = 15$	
	Let Q bette angle between à and B	
		1
	$\frac{1000 \text{ Coso} = \frac{1000}{12000} = \frac{15/2}{3.5} = \frac{1}{2} \Rightarrow 0 = \frac{11/3}{3}$	
25	Bag I Bag II	1
	WBWB AS	
	Ball drawn from bag I can be while or Black	
Ca	Ball drawn from bag I can be while or Black se I P (white from first and black from 2na)	
	$=\frac{3}{7}\times\frac{5}{10}$	1/2
00	use I P (black from forst and black from 2nd)	
		/2
	$= \frac{4}{7} \times \frac{6}{10}$	
6	· Tolal Probability = 3x5 + 4x6 _ 15+24 .	39 1
	7 10 70	70

26.		
	lim JI+Kx - JI-Kx x JI+Kx+JI-Kx 20->0.	
	= Lim _ X+Kx-X+Kx x = 0	
	= 2K \ = 2K \ =	
	$\lim_{X\to 0^+} \frac{2x+1}{2x+1} = -1, \Rightarrow K=-1$	
	dx = -30 cososmo; dy = 30 sinocoo	
	$\frac{dy}{dx} = -\tan \theta.$	1/2
	$\frac{dx}{dx^2} = -\sec \theta x - \frac{1}{3a \cos \theta \sin \theta}$	
	$\frac{A+0=1\%}{3} = +\frac{4}{3} \frac{1}{3} \frac{4}{3} \frac{2}{3} \frac{1}{3} \frac{3}{3} \frac{1}{3} \frac{1}{3} \frac{3}{3} \frac{1}{3} \frac{1}{3} \frac{3}{3} \frac{1}{3} \frac{1}{3} \frac{1}{3} \frac{3}{3} \frac{1}{3} \frac{1}$	1/2
27	fex)=文+之 = 生(x)=生-2== 2x2	
	$f(x) = 0 \Rightarrow x = \pm 2.$	V
	: Inlervals one	/2
	$(-\infty, -2], [-2, 0), (0, 2], [2, \infty)$ $f(x)>0 in (-\infty, -2] and (2, 2) in (-1)$	1/2
C	+(x)>0 in (-∞,-2] and [2,∞): strictly income playex)<0 in [-2,0) U(0,2): Strictly decre	reasing.

28, 7-	[2] dv	oi Wark
(AC) 1-	J (1-x) (1+x2)	
	Writing 2 - A Bx+C	1/3
	Geling $A = B = C = 1$	
T=	(1 dx 1/2+1 dx	
	J 1-5e J-5e ² +1	
	= - log 1-x + \flog x+1 + tanx + C	11/2
(b) I	$= \int \frac{2c+3}{\sqrt{5-4x-x^2}} dx$	
	V STAXT	
	$= -\frac{1}{2} \int \frac{-2x-4-2}{\sqrt{5-4x-x^2}} dx$	
	$= -\frac{1}{2} \int \frac{-4-2x}{\sqrt{5-421-2x^2}} dx + \int \sqrt{9-(x+2)^2} dx$	
	V V Y - (X+2)-	
	= -1.2. \(5 - 4x - x2 + Sin \(\frac{2+2}{3} \) + C	
29 T-		
7 -	Je sinx - 1+ cosx = (11-x) sin(11-x)	tx 1
	$\int_{0}^{\infty} \frac{(1-x)\sin x}{1+\cos x} dx - (ii)$	1/2
21=		
~1 -	11 311/2 dx	
95	Pur Crexet	1/
QL = 1	$\int_{1}^{\infty} \frac{-dt}{1+t^2} = \prod \int_{1}^{\infty} \frac{dt}{1+t^2} = \prod \int_{1}^{\infty} \frac{dt}{1+t^2} = \prod \int_{2}^{\infty} \frac{dt}{1+$	/2
T =	$\frac{1}{1} \left[\frac{1}{1} \left[\frac{1} \left[\frac{1}{1} \left[\frac{1} \left[\frac{1}{1} \left[\frac{1}{1} \left[\frac{1}{1} \left[\frac{1} \left[\frac{1}{1} \left[\frac{1} \left[\frac$	
	2 12 14 14 4	

30	we can while dy _ Cosx	of Marks
(0		
	> log 1+7 = - log 2+8mx + C	
	$2^{20}, y=1 \Rightarrow 2\log_2 = c$ or $c = \log_4 -$	1/2
	My (1+3) + My (2+000) x) = 1094	1/2
	=>(2+Sim(1+4) = 4	1/2
	At x=17/2 (2+1)(1+4)=4 = 4-1=1	12
/.	1 3 3 -1 -3	1/2
(6)	Here dy Yx	
	41 doc - 25c-2clugy/ 2-10941.	
	X=V= Ox = V+xdy VX	
	> V+xcdv = v dx	
	2-logv	
	DC CIV _ V-2V+VlogV	
	dx 2-logv = 2-logv	
	-> Cology . Ch.	
	$\frac{1}{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{$	
	C A A A C A	
	$\int \frac{1}{V(1-\log v)} dx + \int \frac{1}{V} dv = -\int \frac{dx}{x}$	
	log(1-logv) + logv + logx = logc	
	$(1-\log V) x v_{-} c$	
	(1-log 4/x) = = = : : - : : : : : : : : : : : : : :	
31.	d-1/27	
	142	
	$\vec{a} = \lambda (32\hat{i} - j - 14\hat{k})$ $= 32\hat{i} - \hat{i} - 14\hat{k}$	
	2.d=(64+1-56)) =15	
	> 91=15=5 \ = 53 = 53 (321-1-14k)	1

of Mark (a) \forall (a,b) \in NXN, we have (a,b) $R(a,b)$ if (a,b) (c,d) \in NXN Let (a,b) $R(c,d)$ ve $ad = bc \Rightarrow da = cb$ or $cb = da$ (iii) Let (a,b) $R(c,d)$ and (c,d) $R(c,p)$ \Rightarrow $aa = bc$ and $cp = de \Rightarrow ad = cp$ \Rightarrow (a,b) $R(c,d)$ and (c,d) $R(c,p)$ \Rightarrow $aa = bc$ and $cp = de \Rightarrow ad = cp$ \Rightarrow $ap = bc$ \Rightarrow $ap = bc$ \Rightarrow $ap = cpuvalence$ \Rightarrow $ap = cpuvalenc$	32.	of Marks
Let $(a,b) R(c,d)$ we $ad=bc \Rightarrow da=cb$ or $cb=da$ $(im) bor (a,b) R(c,d) and (c,d) R(e,p),$ $\Rightarrow ad=bc and cp=de \Rightarrow ad-cp=bcde$ $\Rightarrow af=be \Rightarrow (a,b) R(e,p) \therefore R(s) random Relation$ OR $\Rightarrow af=be \Rightarrow (a,b) R(e,p) \therefore R(s) random Relation$ OR $\Rightarrow af=be \Rightarrow (a,b) R(e,p) \therefore R(s) random Relation$ OR $\Rightarrow af=be \Rightarrow (a,b) R(e,p) \therefore R(s) random Relation$ OR $\Rightarrow af=be \Rightarrow (a,b) R(e,p) \therefore R(s) random Relation$ OR $\Rightarrow af=be \Rightarrow (a,b) R(e,p) \therefore R(s) random Relation$ OR $\Rightarrow af=be \Rightarrow (a,b) R(e,p) \therefore R(s) random Relation$ OR $\Rightarrow af=be \Rightarrow (a,b) R(e,p) \therefore R(s) random Relation$ OR $\Rightarrow af=be \Rightarrow (a,b) R(e,p) \therefore R(s) random Relation$ $\Rightarrow af=be \Rightarrow (a,b) R(e,p) \therefore R(s) random Relation$ $\Rightarrow af=be \Rightarrow (a,b) R(e,p) \therefore R(s) random Relation$ OR $\Rightarrow af=be \Rightarrow (a,b) R(e,p) \therefore R(s) random Relation$ $\Rightarrow af=be \Rightarrow (a,b) R(e,p) \therefore R(s) random Relation$ $\Rightarrow af=be \Rightarrow (a,b) R(e,p) \therefore R(s) random Relation$ $\Rightarrow af=be \Rightarrow (a,b) R(e,p) \therefore R(s) random Relation$ $\Rightarrow af=be \Rightarrow (a,b) R(e,p) \therefore R(s) random Relation$ $\Rightarrow af=be \Rightarrow (a,b) R(e,p) \therefore R(s) random Relation$ $\Rightarrow af=be \Rightarrow (a,b) R(e,p) \therefore R(s) random Relation$ $\Rightarrow af=be \Rightarrow (a,b) R(e,p) \therefore R(s) random Relation$ $\Rightarrow af=be \Rightarrow (a,b) R(e,p) \therefore R(s) random Relation$ $\Rightarrow af=be \Rightarrow (a,b) R(e,p) \therefore R(s) random Relation$ $\Rightarrow af=be \Rightarrow (a,b) R(e,p) \therefore R(s) random Relation$ $\Rightarrow af=be \Rightarrow (a,b) R(e,p) \therefore R(s) random Relation$ $\Rightarrow af=be \Rightarrow (a,b) R(e,p) \therefore R(s) random Relation$ $\Rightarrow af=be \Rightarrow (a,b) R(e,p) \therefore R(s) random Relation$ $\Rightarrow af=be \Rightarrow (a,b) R(e,p) \therefore R(s) random Relation$ $\Rightarrow af=be \Rightarrow (a,b) R(e,p) \therefore R(s) random Relation$ $\Rightarrow af=be \Rightarrow (a,b) R(e,p) \therefore R(s) random Relation$ $\Rightarrow af=be \Rightarrow (a,b) R(e,p) \therefore R(e,p) \therefore R(e,p) \Rightarrow (a,b) R$	(a) (1) + (a,b) = NXN, we have (a,b) R(a,b)	
$af = be \Rightarrow (a,b)R(e,f) : R is branshir.$ $R is an equivalence Relation $	(1) + (a,b), (c,d) enxn : ab=ba > Ris Repl	exive. 1/2
$af = be \Rightarrow (a,b)R(e,f) : R is branshir.$ $R is an equivalence Relation $	Let (a,b) R(c,d) we ad=bc => da=cb	or cb=da
$af = be \Rightarrow (a,b)R(e,f) : R is branshir.$ $R is an equivalence Relation $	(III) let (a,b) R(c,d) and (c,d) R(e,e).	nelad 1/2
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	au = oc aug ct = ge = oddo	
For $x_1 x_2 \in A$ Let $f(x_1) = f(x_2)$ $ \frac{1}{x_1-2} = \frac{x_2-2}{x_1-3} \Rightarrow \frac{x_1}{x_2} = \frac{x_2}{3x_1-3x_2+6} $ $ \frac{1}{x_1-2} = 0 \Rightarrow x_1 = x_2 $ $ \frac{1}{x_1-2} = \frac{x_2-2}{x_2-3} \Rightarrow \frac{x_1}{x_2} = \frac{x_2}{3x_2-3x_2+6} $ $ \frac{1}{x_1-2} = 0 \Rightarrow x_1 = x_2 $ $ \frac{1}{x$	R is an equivalence Relation	2
$ \frac{7}{3_{1}-3} = \frac{x_{2}-2}{x_{2}-3} \Rightarrow \frac{3}{1}x_{2}-3x_{1}-2x_{2}+6 $ $ \frac{7}{3_{1}-3} = \frac{x_{2}-2}{x_{2}-3} \Rightarrow \frac{3}{1}x_{2}-3x_{1}+6 $ $ \frac{7}{3_{1}-3} = \frac{3}{3_{1}-3} \Rightarrow \frac{3}{3_{1}-3} = \frac{3}{3_{1}-3} =$	<u>OR</u>	
$\frac{3}{3} \cdot \frac{(x_1 - x_2) = 0}{3x_1 - 3x_2} \Rightarrow \frac{x_1 = x_2}{x_1 - 3x_2} \Rightarrow \frac{x_1 = x_2}{x_2 - 3x_2} \Rightarrow \frac{x_2 - 3x_2}{x_1 - 3x_2} \Rightarrow \frac{x_2 - 3x_2}{x_2 - 3x_2} \Rightarrow \frac{x_2 - 3x_2}{x_2} \Rightarrow \frac{x_2 - 3x_2}{$	For 29,262 EA Let fex,) = fex2)	
$\frac{3}{3} \cdot \frac{(x_1 - x_2) = 0}{3x_1 - 3x_2} \Rightarrow \frac{x_1 = x_2}{x_1 - 3x_2} \Rightarrow \frac{x_1 = x_2}{x_2 - 3x_2} \Rightarrow \frac{x_2 - 3x_2}{x_1 - 3x_2} \Rightarrow \frac{x_2 - 3x_2}{x_2 - 3x_2} \Rightarrow \frac{x_2 - 3x_2}{x_2} \Rightarrow \frac{x_2 - 3x_2}{$	$\frac{3}{24-2} = \frac{x_2-2}{x_1-3} \Rightarrow \frac{3}{2} = 3$	22+6
Since $y \neq 1$ $\Rightarrow x \in A$ $\Rightarrow x = x = 2$ $x = \frac{3y-2}{y-1}$ $\Rightarrow x = 3y-2$	7 (31-32) =0 =) 34= x2 -4-	122-t-6
Since $y \neq 1$ is $x \in A$ $\Rightarrow R \text{ is conto}$ $\Rightarrow R \text$		2/2
Since $y \neq 1$ is $x \in \mathbb{A}$ $y = 1$ is $x = 2 + 2$ $y = 1$ $y = 2 + 2$ $y = 2$		
Given $2\int x dx = 2\int x dx$ $2x^{3/2} = 2x^{3/2} = 2x^{$	x = 39-2	21/2
$\frac{2\pi^{3/2}}{3} = 2\pi^{3/2} \begin{vmatrix} 4 & -1 \\ 3 & 3 \end{vmatrix} = 2\pi^{3/2} \begin{vmatrix} 4 & -1$	33. a 4	_y=x /2
	Given 2 Jxdx = 2 Jxdx	FG: 1/2
	273/2 214	
	3 - 20c2	
$a = (4)^{\frac{2}{3}} = (16)^{\frac{1}{3}} \approx 0.$ 2m.	$\Rightarrow a = (4)^2 - a^2 \Rightarrow a^2 = \frac{1}{2}(8) = 4$	
	$a = (4)^{\frac{1}{3}} = (16)^{\frac{1}{3}} =$	₹U. —— 27a.

34	Given lines B=(01 01 11 11 11 11 11 11 11 11 11 11 11 1	of Mark
	Given lines $\mathcal{Z}=(8\hat{\imath}-9\hat{\jmath}+10\hat{k})+\lambda(3\hat{\imath}-16\hat{\jmath}+7\hat{k})$ and $\mathcal{Z}=(15\hat{\imath}+29\hat{\jmath}+5\hat{k})+\mu(3\hat{\imath}+8\hat{\jmath}-5\hat{k})$	
	======================================	
	$\vec{a}_{2} - \vec{a}_{4} = (7\hat{a} + 38\hat{j} - 5\hat{k})$ $\vec{b}_{1} \times \vec{b}_{2} = \hat{a}_{3} - \hat{a}_{4} $	
	20-0	
	= 241+361+728	1/2
	$= (a_2 - a_4) \cdot (b_1 \times b_2)$	
	= (a2-a4) · (b1xb2) = 168 +1368-360 =1176	1
	bixbel = 576 + 1296+5184 +7056 = 84	
	SD = 1796 - 11	11/
	84 - 14	1/2
	(b) Any for onthe line's	
	(b) Any par. cossilie line is (1,24+1,34+2) (1,24+1,34+2)	-2)
	DRS DPQ X 1-121 (21-1)	
	PO · (1,23) = 0 - 1	<u> </u>
	PO · (1,73)=0=) \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
	141514 5/2	
	=) \(\lambda(\lambda,3,5)\)	-1-
	「(355)) (31)) (35)) (35)	
	9+6=3=3 9 9=0 (1,0,7)	
	Z+3-5-7-7	
35.	7-632	
≥0.	Z= 62c+3y	
	80 +A (2.72)	
	$Z_{A} = 228$ $= 228$ 60 $A = (2,72)$	
	ZB = 150 40 - (15,20)	- 31/m
	Za - 285 (40,15)	012.
	:. MIN = 150 :. MIN = 150 :. MX = 150 /2 m	×
	at x=15, y=20 1/2 m 4x+y=80	34=115

	(1) $3x+2y+z=2200$	P
	(11) $4x + y + 3z = 3100$	
	(III) x= \(\frac{7}{2}\) 300 \(\frac{7}{2} = \(\frac{7}{2}\) 500.	2
	x= 7500 CR y= 7200 Z= 73000	2
38.	(1) h(t) = -7 £ + 28 t+1 is a polynomial function Se, a Continions function.	
	(ii) $h(1) = -7 + 28 + 1 = 22 m$.	
	(111) $h'(t) = -14t + 28$	
	$h'(t)=0 \Rightarrow t=2$ Sec.	
	and $h(2) = -28 + 56 + 1 = 29 m$.	
	or.	
	h(Ct) = - 14 t+28 =0 => t=2	
	: losternls (-00,2), (2,00)	1
	h(t) is 1 in (-00,2) and I in (2,00)	1
38	(1) $P(A/E_1) = \frac{6}{10}$	1
	$(11) PCA(E2) = \frac{2}{10}$	
	(III) PCAJ= PCEI) PCAJEI) + PCEZ) PCAJEZ) +PCE	
	= 20 x 6 + 80 x 7 = 7	1
	DCEIM - PCEN-PCMEN	
	PCE().PCA(E)).PCA(E)	3
	= 20/100× 6/100 3	
	7/25	