

25A/12/105

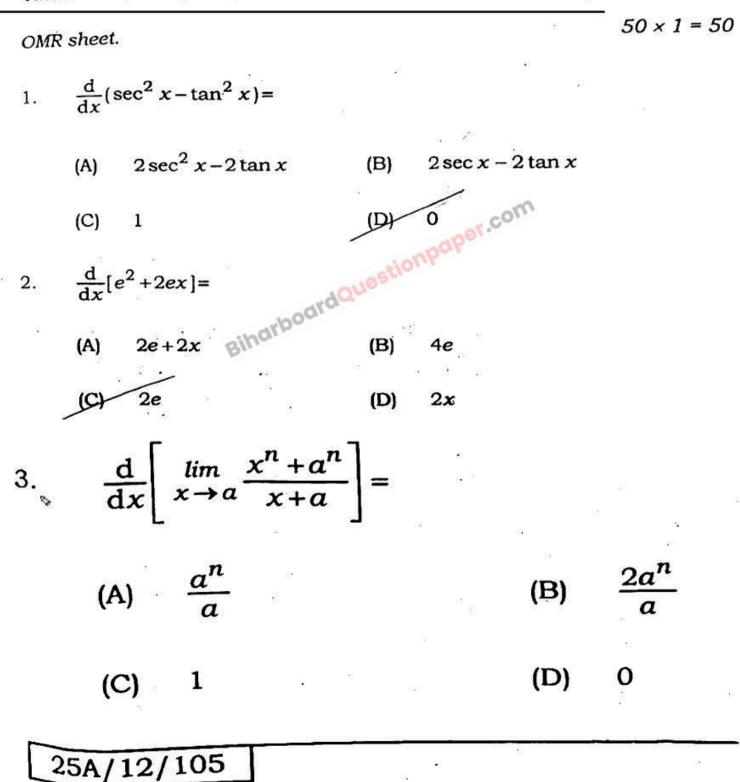
खण्ड - अ / SECTION - A

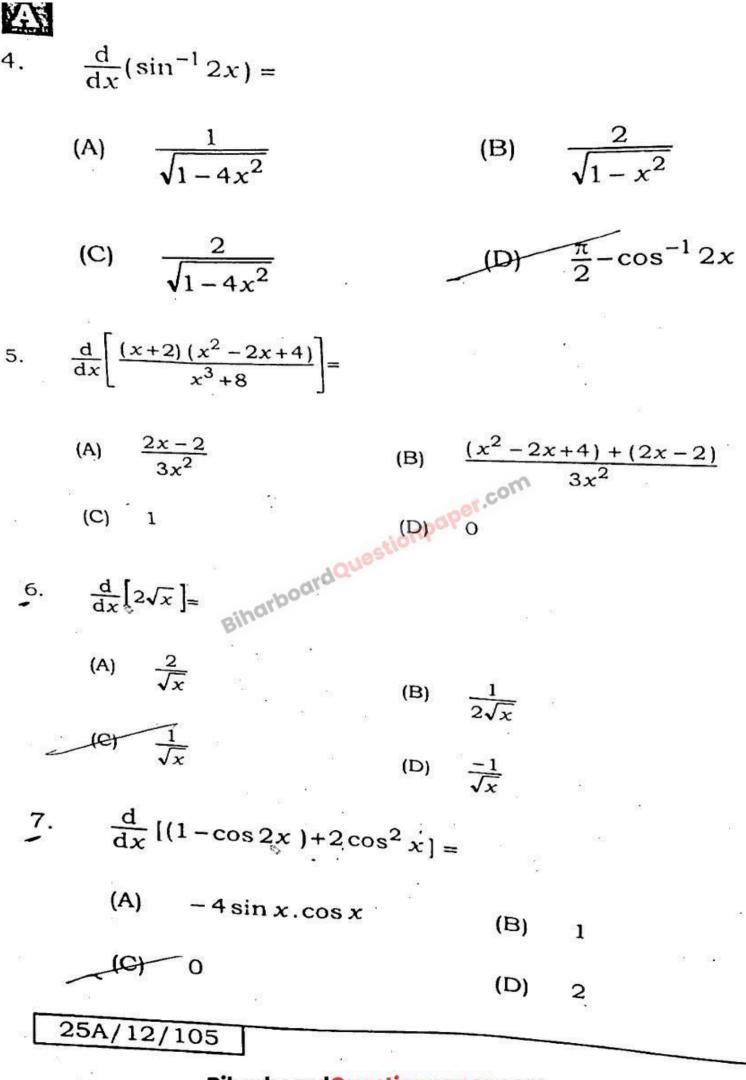
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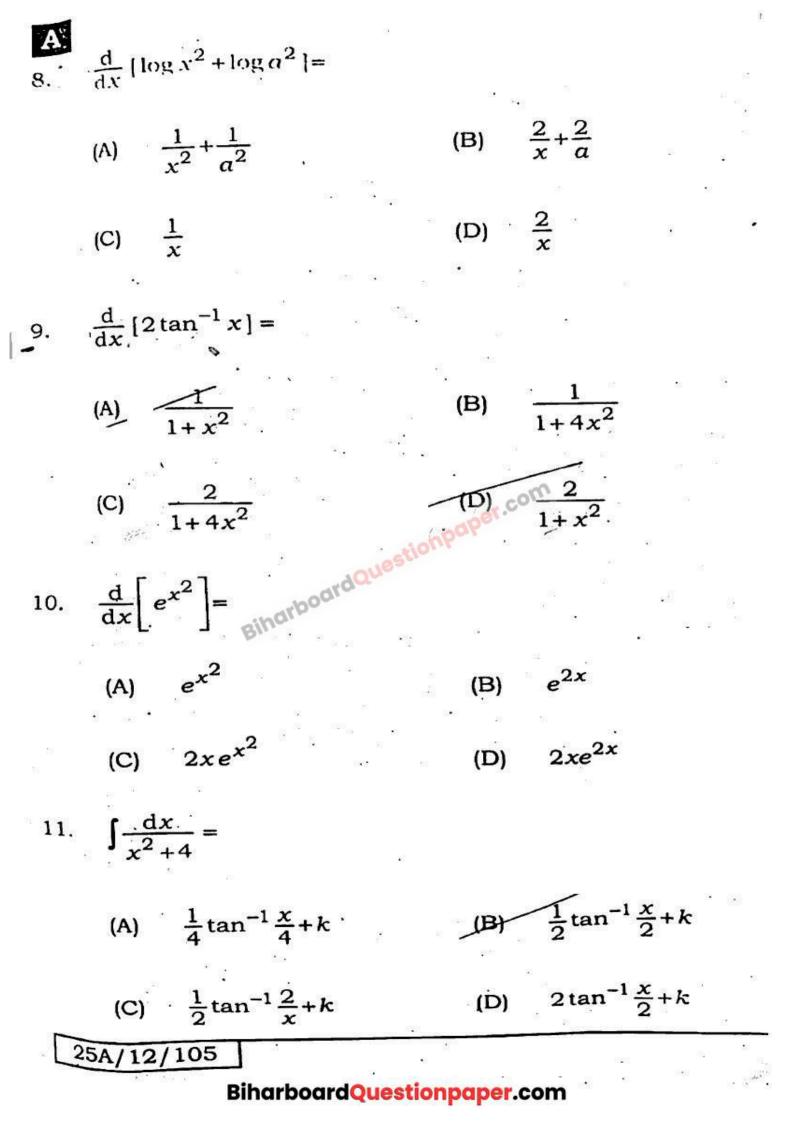
वस्तुनिष्ठ प्रश्न / Objective Type Questions

• प्रश्न संख्या 1 से 100 तक के प्रश्न के साथ चार विकल्प दिए गए हैं जिनमें से एक सही है। किन्हीं 50 प्रश्नों के उत्तर दें। अपने द्वारा चुने गए सही विकल्प को OMR शीट पर चिहिनत 50 × 1 = 50 करें।

Question Nos. 1 to 100 have four options, out of which only one is correct. Answer any 50 questions. You have to mark your selected option on the







$$A = \begin{bmatrix} 121 \\ 12. \end{bmatrix} \int \frac{\cos 2x}{\cos x + \sin x} dx = \begin{bmatrix} (A) & \sin x - \cos x + k & (B) & -\sin x - \cos x + k \\ (C) & \sin x + \cos x + k & (D) & -\sin x + \cos x + k \end{bmatrix}$$

$$A = \begin{bmatrix} (A) & -\sin (\pi x + \sin \pi) & (B) & -\pi \sin (\pi x) \\ (A) & -\sin (\pi x + \sin \pi) & (B) & -\pi \sin (\pi x) \\ (C) & -\sin \pi x & (D) & \sin x \end{bmatrix}$$

$$A = \begin{bmatrix} (A) & -\sin (\pi x + \sin \pi) & (B) & -\pi \sin (\pi x) \\ (C) & -\sin \pi x & (D) & \sin x \end{bmatrix}$$

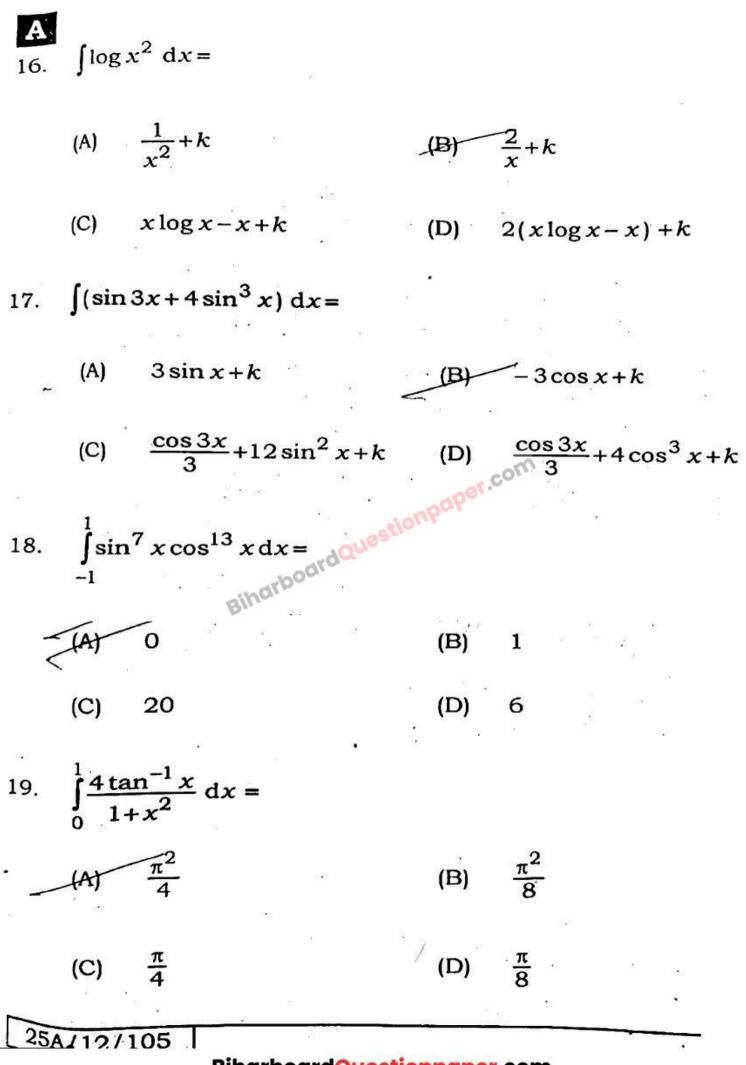
$$A = \begin{bmatrix} (A) & -\pi x + \sin \pi \\ (C) & -\pi x & (D) & \sin x \end{bmatrix}$$

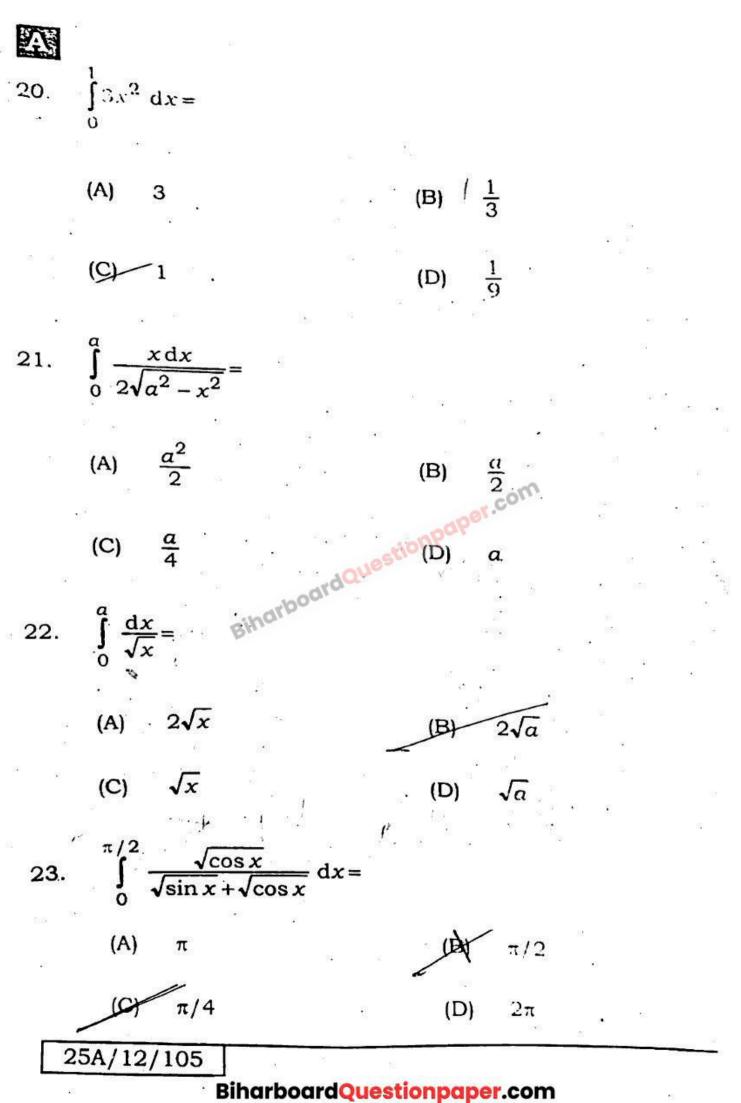
$$A = \begin{bmatrix} (A) & \frac{x^2}{2} + k + \sin \pi \\ (C) & x + k & (D) & \log \sec (\tan^{-1} x) + k \end{bmatrix}$$

$$A = \begin{bmatrix} (A) & \frac{x^2}{2} + k + \sin \pi \\ (C) & x + k & (D) & \log \sec (\tan^{-1} x) + k \end{bmatrix}$$

$$A = \begin{bmatrix} (A) & \frac{-1}{e^{-x}} + k & (B) & e^x + k \\ (C) & \frac{1}{e^{-x}} + \frac{1}{x^2} + k & (D) & -e^{-x} + k \end{bmatrix}$$

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π/2 $\int \log \tan x \, \mathrm{d}x =$ 24. 0

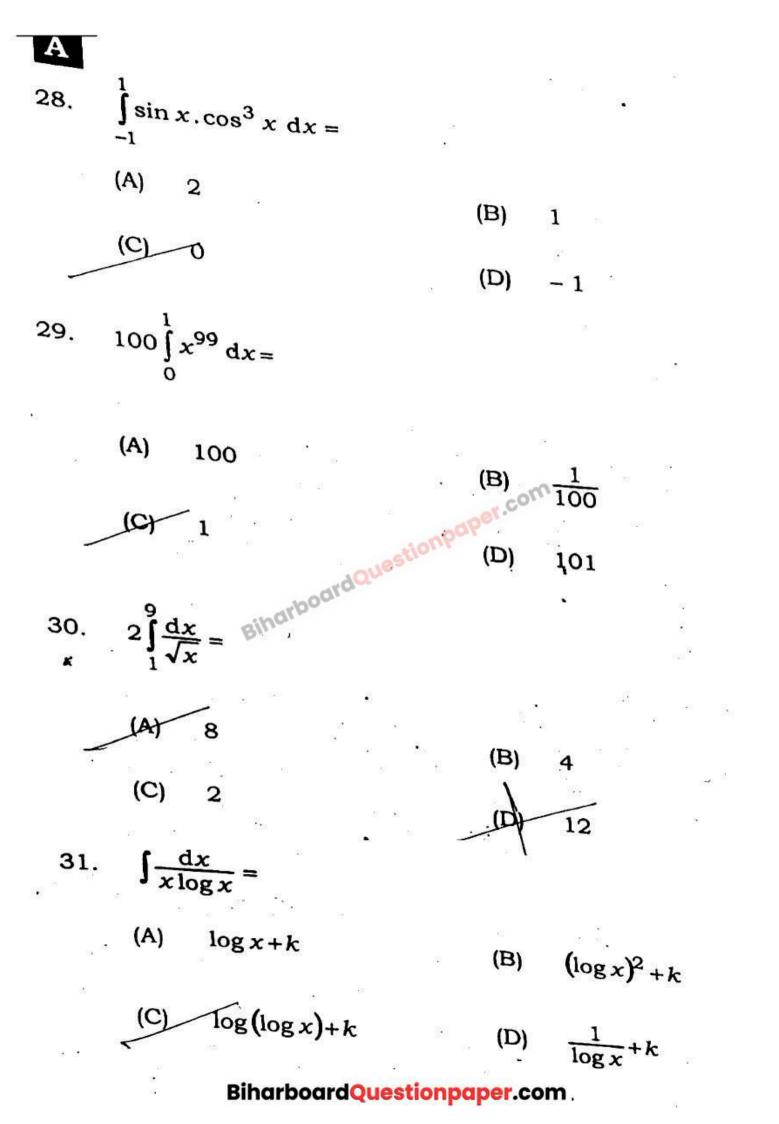
- (A) π/4 (B) $\pi/2$ 0 (C) (D) π $25. \quad \int^{1} e^{x} dx =$
 - (A) e 1 – e (B)
 - (C) e-1 (D) $\pi/2$
- $\int \sin x \cdot \cos x \, \mathrm{d}x$ 26.
 - Bihar $\frac{1}{2}$ (A) 1 (B) (D) $\frac{1}{4}$ - 1 (C)
 - 27. $\int_{0}^{1} (x+2x+3x^{2}+4x^{3}) \, \mathrm{d}x =$ $\frac{5}{2}$ (B)
 - (A) 10
 - (C) $\frac{7}{2}$

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 $\frac{1}{2}$

(D)



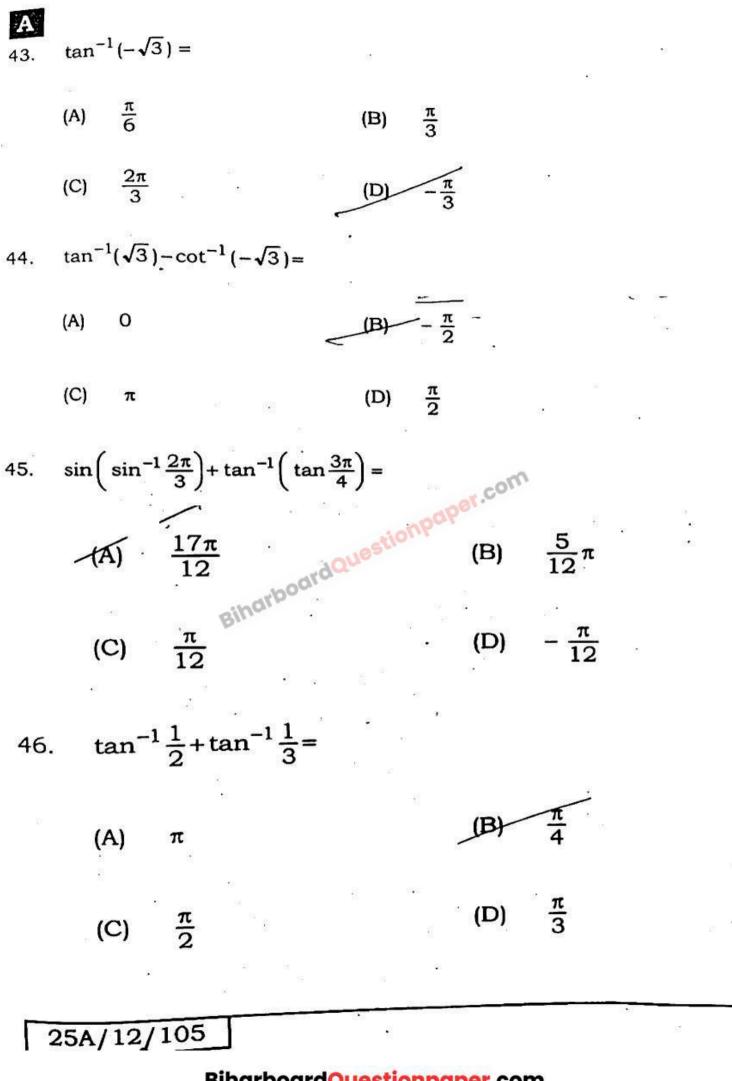
A			121,				
32.	$\int \frac{x}{x^2}$	$\frac{3}{-9} dx =$					
	(A)	$\log(x-3)+k$ (B) $\log(x+3)+k$					
			a.				
	(C)	$-\frac{1}{(x+3)^2}+k$ (D) $\frac{x^2}{2}-3x+k$	l				
33.	यदि n	(A)=4 तथा n(B)=2, तो n(A×B) =					
8	(A)	6 (B) 8					
	(C)	16 (D) इनमें से कोई नहीं					
	Ifn(A)=4 and $n(B)=2$, then $n(A \times B) =$					
		i) = (dird ((2)) = 2, dich ((1))					
22	(A)	6 BiharboardQuestre (B) 8 16 BiharboardQuestre (B) 8					
	(C)	16 Binard (D) none of these					
34)	यदि सं	क्रेया ' <u>o'</u> इस प्रकार परिभाषित है कि (aob) =a ³ +b ³ , तो 4 o(1 o 2) =	a de la constante de				
	(A)	729. (B) 793					
	(C)	783 (D) 792					
	If operation 'o' is defined as $(a \circ b) = a^3 + b^3$, then $4 \circ (1 \circ 2) =$						
	(A)	729 (B) 793.					
	(C)	783 (D) 792					
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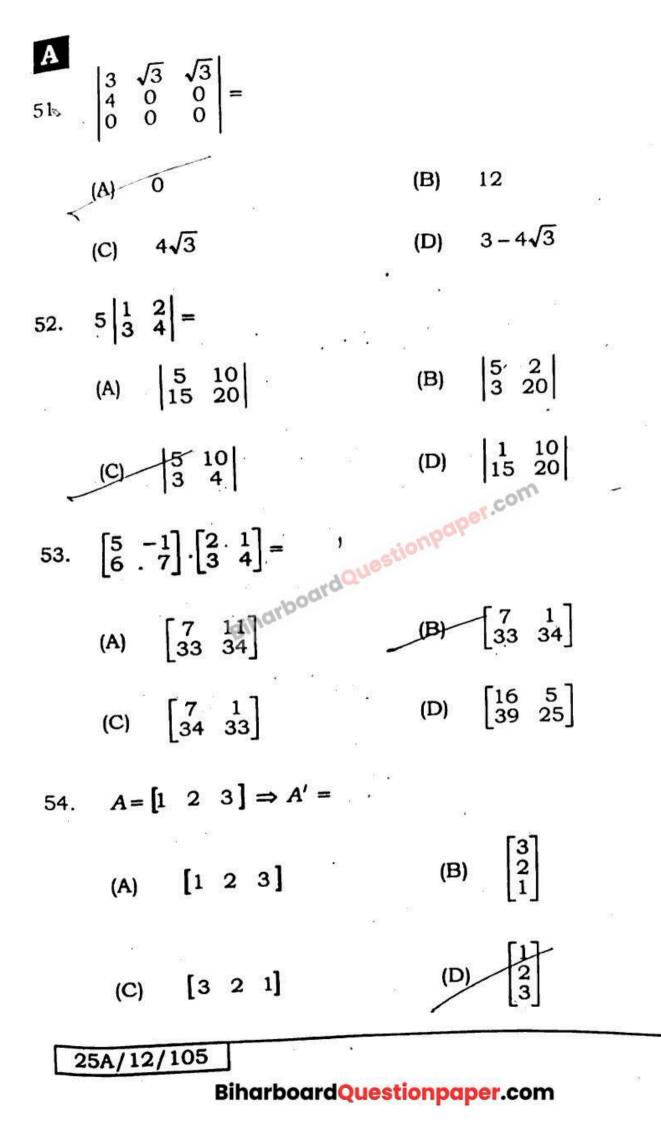
[121/327] $f: A \rightarrow B$ आच्छादक फलन होगा, यदि 35. (A) $f(A) \subset B$ f(A) = B(B) (C) $f(A) \supset B$ (D) $f(A) \neq B$ $f: A \rightarrow B$ will be an onto function, if (A) $f(A) \subset B$ (B) f(A) = B(C) $f(A) \supset B$ $f(A) \neq B$ (D) यदि $f: R \rightarrow R$, जहाँ f(x) = 3x - 4 तो $f^{-1}(x)$ निम्नलिखित में कौन होगा ? 36. (A) $\frac{1}{3}(x+4)$ BiharboardC (B) $\frac{1}{3}x-4$ (C) 3x-4अपरिभाषित (D) If $f: R \to R$ such that f(x) = 3x - 4 then which of the following is $f^{-1}(x)$? (A) $\frac{1}{3}(x+4)$ $\frac{1}{3}x-4$ (B) (C) 3x - 4(D) Undefined 25A/12/105 Page 12 / 40

A 37. या	र संक्रिया	' <i>o</i> '	इस प्रकार	परिभाषित	है कि	[121/327] (aob) =a ² + b ² - ab , तो	
(1	(1 0 2) 0 3 =						
(A) 18	81		(B)	27		
(C) 9			(D)	12	ы ж	
If operation 'o' is defined as $(a \circ b) = a^2 + b^2 - ab$, then $(1 \circ 2) \circ 3 =$							
(<i>F</i>	.) 18	×.		(B)	27		
(0) 9			(D)	12	а -	
38. माना कि $A = \{1, 2, 3,, n\}$, तो कितने एकैकी आच्छादी फलन $f: A \rightarrow A$ परिभाषित							
हो	सकते हैं ?	×		ardquest	ionper	ж Т	
(A)	n		Biharbo	(B)	<u> n</u>	8 22	
(C	$\frac{1}{2}$	<u>1</u> .		(D)	<u>(n –</u>	<u>1)</u>	
Let $A = \{1, 2, 3,, n\}$. How many bijective functions $f: A \rightarrow A$ can be							
de	fined ?	3					
(A	.) n			(B)	ln		
(0	い <u>1</u> し	<u>n</u>		(D)	<u>(n –</u>	<u>1)</u>	
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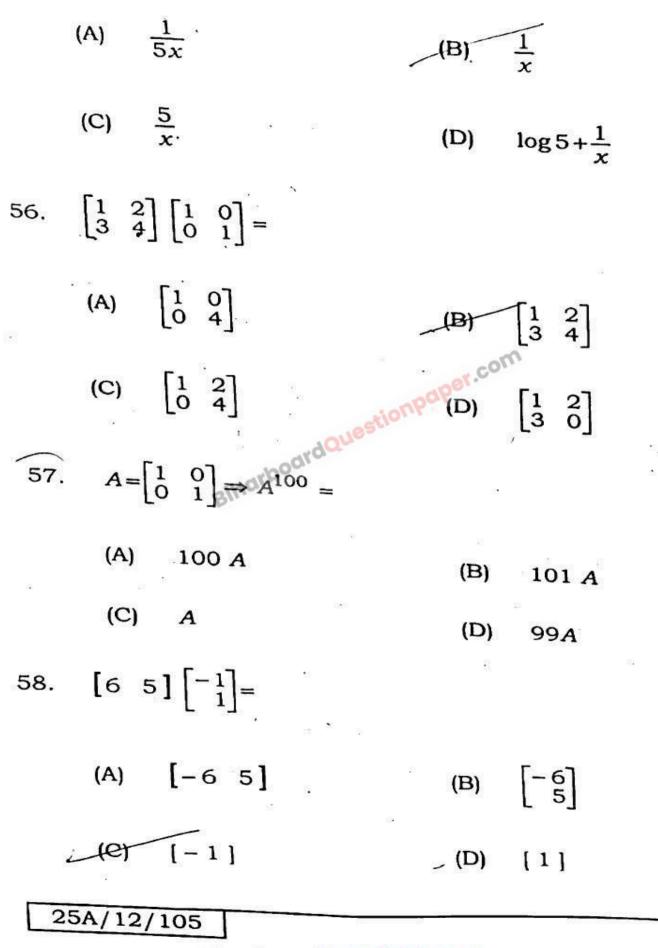
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39.
$$\tan\left\{\frac{1}{2}\left(\tan^{-1}x + \tan^{-1}\frac{1}{x}\right)\right\} =$$
(A) 1
(B) $\sqrt{3}$
(C) 0
(D) ∞
(A) $\frac{\pi}{2}$
(B) $\cos^{-1}(2x^{2} - 1)$
(C) $\cos^{-1}(1 - 2x^{2})$
(D) $\cos^{-1}(2x^{2} - 1)$
(C) $\cos^{-1}(1 - 2x^{2})$
(D) $\cos^{-1}(2x)$
(I) $(1 - 2x)^{-1}(2x)$
(I) $(1 -$

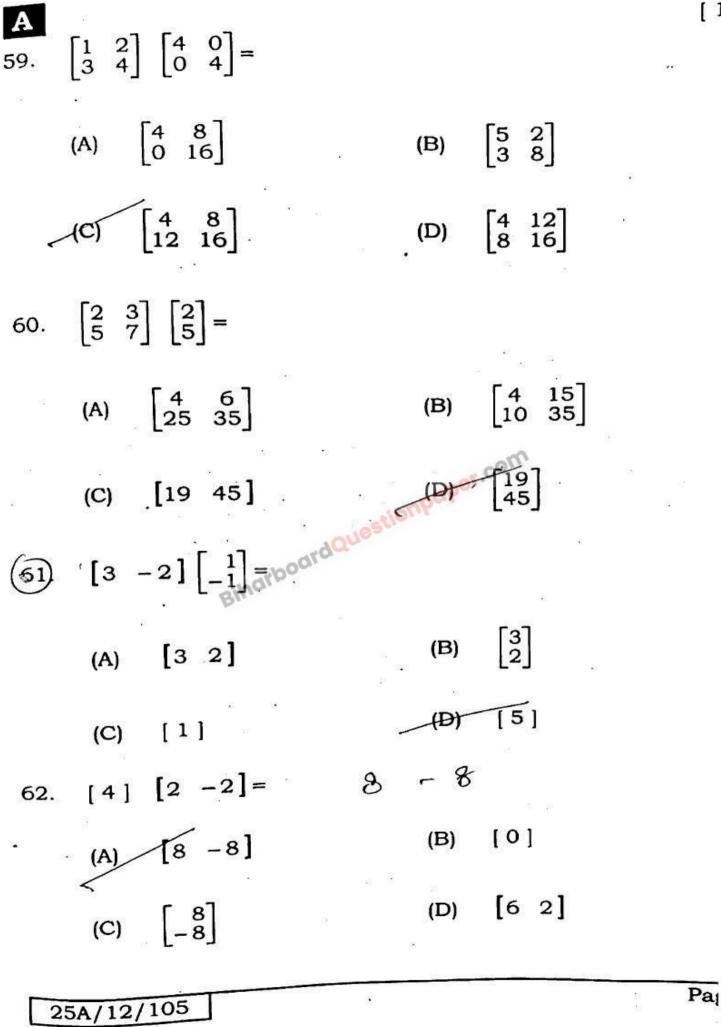




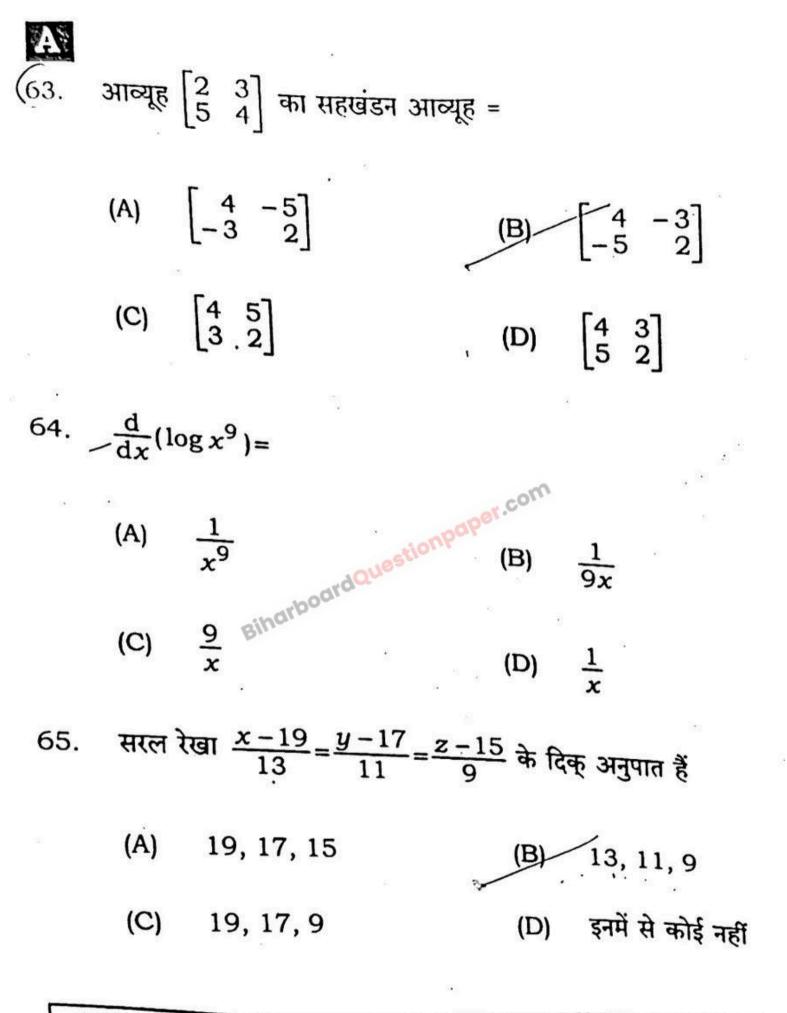
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 $\frac{d}{dx}(\log 5x) =$





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The direction ratios of the straight line

A

$$\frac{x-19}{13} = \frac{y-17}{11} = \frac{z-15}{9} \text{ are}$$
(A) 19, 17, 15 (B) 13, 11, 9
(C) 19, 17, 9 (D) None of these
66. $\frac{1}{12} = \frac{y-12}{13} = \frac{z+13}{14}$ [Ar-fielder, $\frac{1}{4}$ [Berg $\frac{1}{4}$] yatch $\frac{1}{6}$?
(A) 11, 12, 13 (B) 11, 12, -13
(C) 12, 13, 14 (D) -11, -12, 13
Through which of the following points does the line

$$\frac{x-11}{12} = \frac{y-12}{13} = \frac{z+13}{14} \text{ pass ?}$$
(A) 11, 12, 13 (B) 11, 12, -13
(C) 12, 13, 14 (D) -11, -12, 13
(C) 12, 13, 14 (D) -13
(C) 12, 13 (D) 12, 13
(

A If the direction ratios of two parallel lines are 2, 7, 9								
	then the value of x is							
	(A)	9			(B)	18		
	(C) 27			(D)	3	k	
68. यदि दो समांतर रेखाओं के दिक् अनुपात a, b, c तथा x, y, z हों तो az =								
	(A)	су	2	(B)	cx	а ^с		
	(C)	bz	<u>1</u> 27	(D)	npaxper.co	n,		
If the direction ratios of two parallel lines are a , b , c and x , y , z								
	then		Biharbook	paran	ei lines ar	e a, b, c	and <i>x</i> ,	y, z
92.	dicit	uz =	BIII	}	1		175	
	(A)	cy	. 3	(B)	cx	а а		÷
	(C)	bz	31 (21)	(D)	ax		а 8	
69.	यदि दो	परस्पर लम्ब	ब रेखाओं के दिव	र् अनुपात	5, 2, 4 तश	ЯТ 4, 8, <i>х</i>	हैं. तो ,	~ का
	मान है		5 4				.,	
	(A)	9		(B)	-9	99) -		
28 26 060	(C)	8	14 16	· (D)	- 8	31	đ	14 131 - 21 21

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If the direction ratios of two mutually perpendicular lines are A 5, 2, 4 and 4, 8, x then the value x is (B) - 9 9 (A) (D) - 8 8 (C) तल 9x - 8y + 7z = 10 के समांतर एक तल का समीकरण है 70. 9x - 8y + 7z = 59x - 8y - 7z = 5(B) (A) (D) 9x - y + 7z = 59x + 8y + 7z = 5(C) Equation of a plane parallel to the plane 9x - 8y + 7z = 10 is (B) 9x - 8y + 7z = 5 $(A) \cdot 9x - 8y - 7z = 5$ (D) 9x - y + 7z = 59x + 8y + 7z = 5(C) $|\vec{i} - \vec{j} - 3\vec{k}| =$ 71. $\sqrt{11}$ (B) (A) 11 $\sqrt{10}$ (D) (C) √7 72. $(4\vec{i}+3\vec{j})^2 =$ (B) 19 (A) 7 (D) 49 25 (C) × Page 23 / 40 25A/12/105

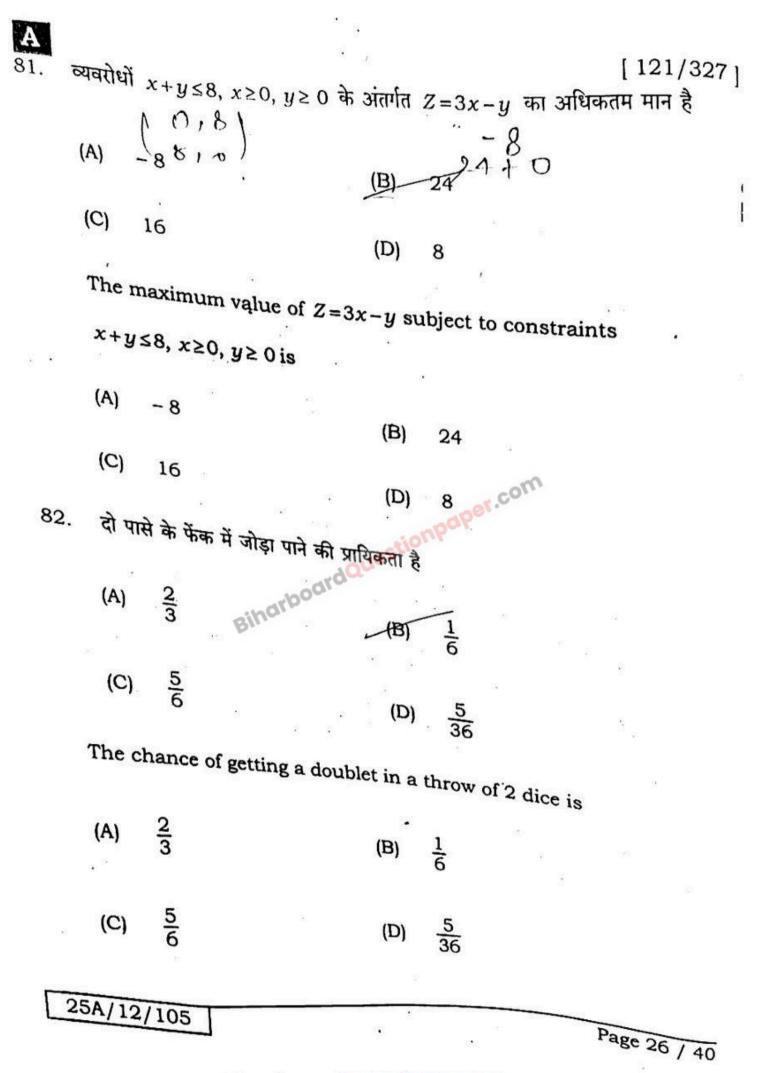
А		<i>(</i>)	54	(K			
73.	(7 i -	8 j +9	\vec{k}).(\vec{i}	$-\overrightarrow{j}+\overrightarrow{k}) =$	i,		
	(A)	25	S.		_(B)-	24	
	(C)	23	jā: V		(D)	22	
74.	$\rightarrow \rightarrow \rightarrow i.i$	$+\vec{i},\vec{j}$	$\rightarrow \rightarrow$ + jj	$+\overrightarrow{j}.\overrightarrow{k}$ +	$\vec{k} \cdot \vec{k} =$		
	(A)	5			(B)	4	1 151
	_10}	3	2176		(D)	2	3.
75.	(11	$\vec{i} + \vec{j} + \vec{j}$	\vec{k}). $(\vec{i}$.	$+\vec{j}+11\vec{k}$	Der.com	`	
	1929 3923	- 22	bodr	auestionp	_(B)-	23 ·	
	•°	24 B	ihare.	* ³⁵	(D)	20	23
76.	(k×	\vec{j}). \vec{i}	=			÷	
Ţ	AT			.*.	(B)	1	
	101	- 1			(D)	$2\vec{i}$	
77.	(<i>i</i> −2	$2\vec{j} + 5\vec{l}$	¢).(−2	\vec{i} +4 \vec{j} +2	$(\vec{k}) = $		
	(A)	20			(B)	18	*
a -	ler	0		× *	(D)	4	8
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A78. $(i \times j) + (i \times i) =$ (A) 2(A) 2(C) k79. निम्नलिखित में से कौनं उद्देश्य फल	$\frac{(B)}{1}$ $(D) - \vec{k}$ $= \vec{k}$					
$(A) \qquad x \ge 10$	(B) <i>y</i> ≥0					
(C) z = 7x + 3y	(D) इनमें से सभी					
Which of the following is objective function ?						
(0)	(B) $y \ge 0$ (D) All of these					
80. व्यवरोधों $x+y \le 35$, $x \ge 0, y \ge 0$ के अंतर्गत $Z = 2x+y$ का अधिकतम मान है						
(A) 35	(B) 105					
1 (0) 70	(D) 140					
The maximum value of $Z=2x$ -	+y subject to constraints					
$x+y \le 35, x \ge 0, y \ge 0$ is						
	(B) 105					
(C) 70	(D) 140					
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प्रायिकता का योग प्रमेय है

83.

(A)
$$P(A \cup B) = P(A) + P(B)$$

(B)
$$P(A \cup B) = P(A) + P(B) + P(A \cap B)$$

(C)
$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

(D)
$$P(A \cup B) = P(A)$$
. $P(B)$

Addition theorem of probability is

(A)
$$P(A \cup B) = P(A) + P(B)$$

$$(E) \quad P(A \cup B) = P(A) + P(B) + P(A \cap B)$$

(C)
$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

$$(D) \quad P(A \cup B) = P(A). \ P(B)$$

84. यदि घटना E का अनुकूल संयोगानुपात a: b हो, तो P(E) =

(A)
$$\frac{a}{a-b}$$
 (B) $\frac{a}{a+b}$

(C)
$$\frac{b}{a+b}$$
 (D) $\frac{b}{a-b}$

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If odds in favour of event E be a: b, then P(E) =

(A)
$$\frac{a}{a-b}$$
 (B) $\frac{a}{a+b}$

(C)
$$\frac{b}{a+b}$$
 (D) $\frac{b}{a-b}$

85. प्रायिकता का गुणन नियम है

$$(A) P(A \cap B) = P(A).P(B)$$

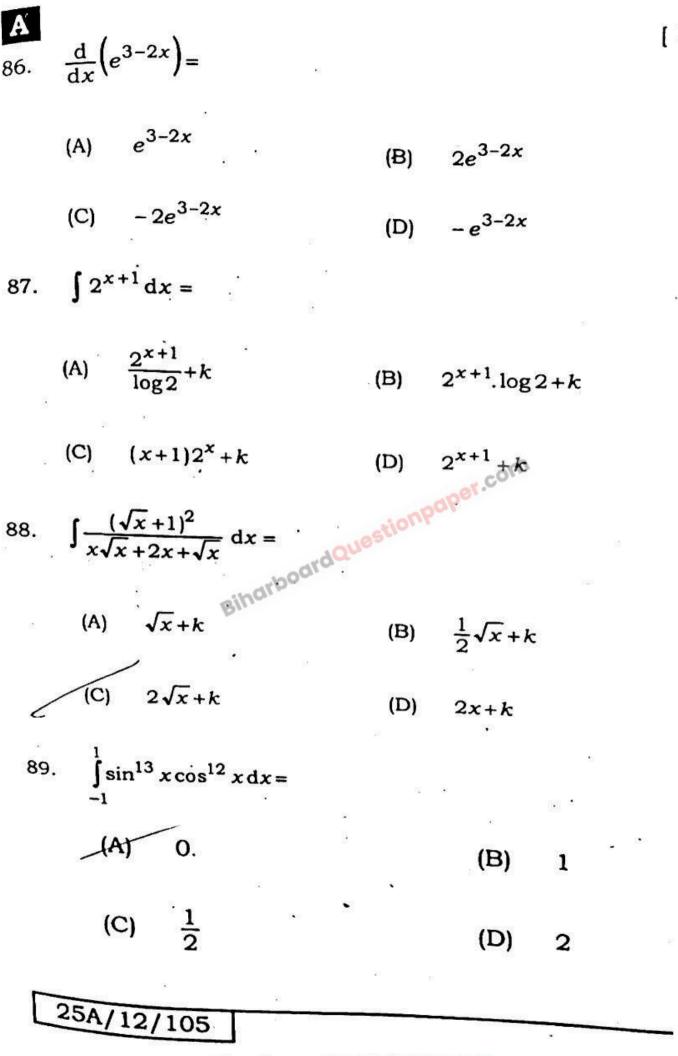
$$(B) \quad P(A \cap B) = P(A) + P(B) - P(A \cup B)$$

- Questionpaper.com (C) $P(A \cap B) = P(A) \cdot P(B/A)$
- इनमें से कोई नहीं (D)

Multiplication theorem of probability is

- (A) $P(A \cap B) = P(A).P(B)$
- (B) $P(A \cap B) = P(A) + P(B) - P(A \cup B)$
- (C) $P(A \cap B) = P(A).P(B/A)$
- (D) None of these

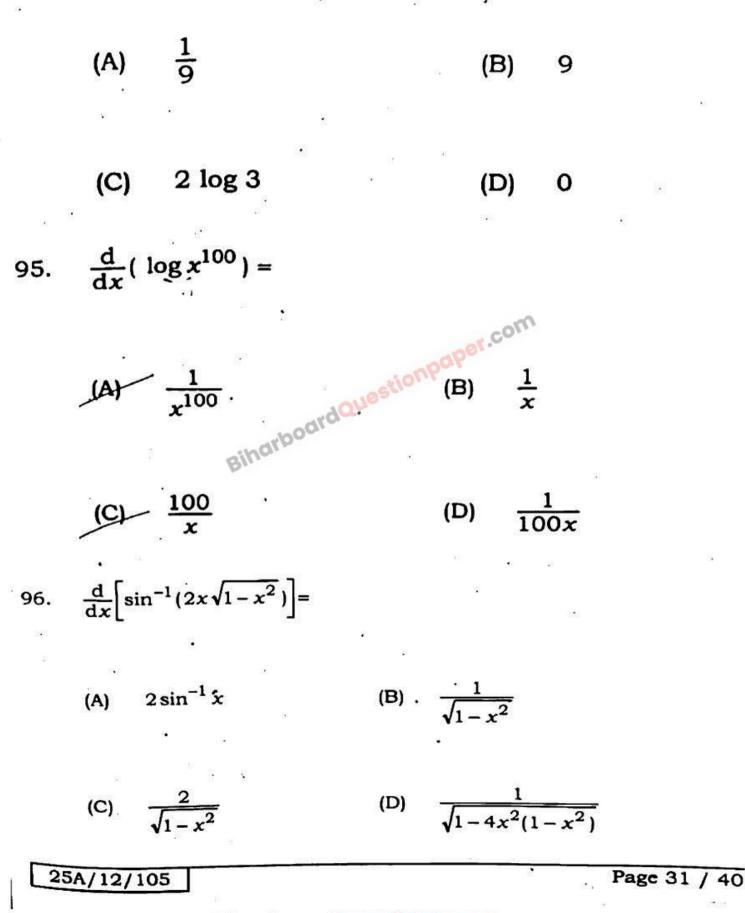
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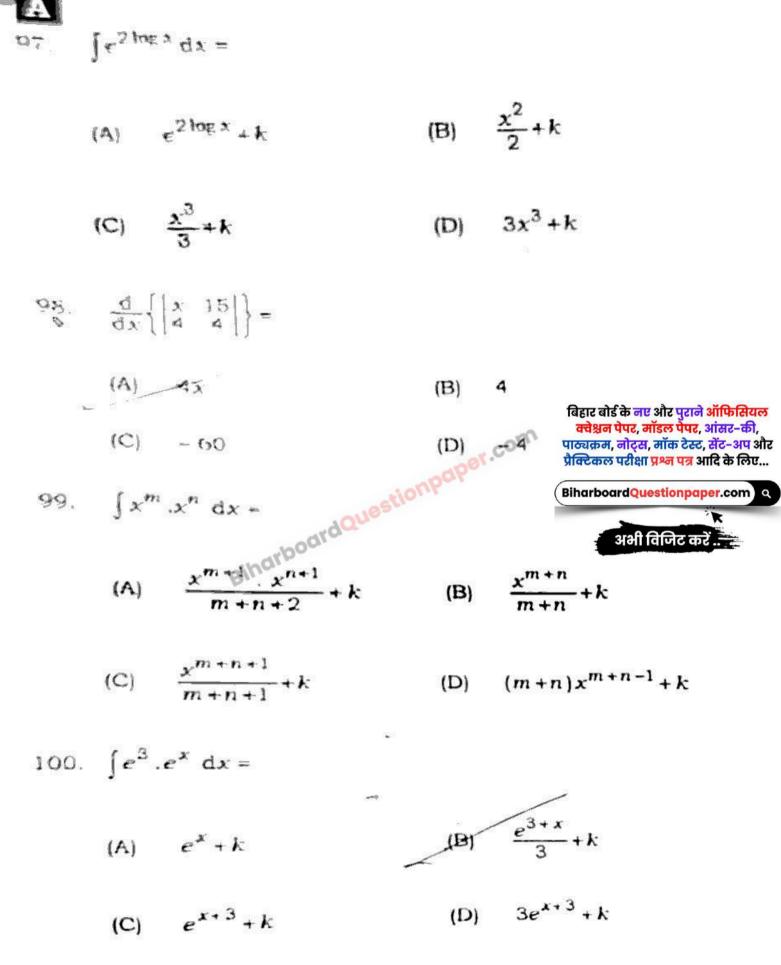


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90. $\int_{0}^{2} e^{x} dx =$ (A) e^2 (B) $e^2 - 2$ $tC) e^2 - 1$ (D) e - 191. $\int_{\alpha}^{\beta} \phi(x) dx + \int_{\beta}^{\alpha} \phi(x) dx =$ (A) 2 (B) 1 92. $\frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ 2 & x \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ 2 & x \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ \begin{vmatrix} x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ x & x \\ y & z \end{vmatrix} \right\}_{\alpha} = \frac{1}{\alpha} \frac{d}{dx} \left\{ x & x \\ y & z \end{vmatrix}$ (A) $x^2 - 2x$ (B) 2x-2(D) x-2(C) 2x+2 $(93, \quad \frac{\mathrm{d}}{\mathrm{d}x} \left\{ \lim_{n \to 1} \frac{x^n - 1}{n+1} \right\} =$ $(B)' \frac{1}{2}$ tAT 0 (D) 1 (C) $\frac{1}{2}x$

A 94. $\frac{d}{dx} \{ \log_3 x \times \log_x 3 \} =$





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