TEST NO: 6 (MCQ TEST)

No. of Question: 100 Max. Marks = 100

Max. Time: ~~180~~ 165 minutes (165 Minutes)

+1 for correct Answer, -1 for incorrect Ans

QNS: 1 → $\int \frac{\sin x\, dx}{3+4\cos^2 x}$

(A) $\frac{-1}{2\sqrt{3}} \tan^{-1}\left(\frac{2\cos x}{\sqrt{3}}\right)+c$ (B) $\log|3+4\cos^2 x|+c$ (C) $\frac{1}{4\sqrt{3}} \log\left|\frac{2-\sqrt{3}x}{2+\sqrt{3}x}\right|$ (D) None of these

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QNS: 2 → $\int \frac{\cos(2x)-\cos(2\theta)}{\cos x-\cos\theta}\, dx$

(A) $2(\sin x - x\cos\theta)+c$ (B) $2(\sin x + x\cos\theta)+c$ (C) $2(\sin x + 2x\cos\theta)+c$ (D) None of these

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QNS: 3 → $\int \frac{1}{1+\cos x}\, dx$

(A) $\cot\frac{x}{2}+c$ (B) $\cot x - \operatorname{cosec} x + c$ (C) $\operatorname{cosec} x - \cot x + c$ (D) None of these

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QN: 4 → $\int \frac{\sin x+\cos x}{\sqrt{1+\sin(2x)}}\, dx$

(A) $\sqrt{1+\sin(2x)}+c$ (B) $\log|\sin x-\cos x|+c$ (C) $\frac{x^2}{2}+c$ (D) $x+c$

QN. 5 → $\int \frac{e^{6\log x}-e^{5\log x}}{e^{4\log x}-e^{3\log x}}\, dx$

(A) $\frac{x^2}{2}+c$ (B) $\frac{x^4}{4}+c$ (C) $\frac{x^3}{3}-\frac{x^2}{2}+c$ (D) None of these

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QN: 6 → $\int \cos^3 x \cdot e^{\log(\sin x)}\, dx$

(A) $\frac{1}{4}\sin^4 x+c$ (B) $-\frac{1}{4}\cos^4 x+c$ (C) $\frac{1}{4}\cos^4 x+c$ (D) None of these

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Q.No:7 → $\int \frac{1}{x^2(x^4+1)^{3/4}} dx$

(A) $\log\left|1+\frac{1}{x^4}\right|+c$ (B) $\frac{4}{3}\left(1+\frac{1}{x^3}\right)^{3/4}$ (C) $-\frac{1}{4}\left(1+\frac{1}{x^4}\right)^{1/4}+c$ (D) None of these

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Q.No:8 → $\int \frac{x^2}{1-x^6} dx$

(A) $\frac{1}{3}\tan^{-1}(x^3)+c$ (B) $\frac{1}{6}\log|1+x^3|+c$ (C) $\frac{1}{2}\log|1-x^3|+c$ (D) $\frac{1}{6}\log\left|\frac{1+x^3}{1-x^3}\right|+c$

Q.No:9 → $\int \sin^{-1}(\cos x)\, dx$

(A) $\frac{\pi x}{2} - \frac{x^2}{2}+c$ (B) $\frac{1}{\sqrt{1-x^2}}+c$ (C) $\frac{x^2}{2}+c$ (D) None of these

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Q.No:10 → $\int \frac{e^x(1+x)}{\cos^2(xe^x)} dx$

(A) $\tan(xe^x)+c$ (B) $-\cot(xe^x)+c$ (C) $\tan(e^x)+c$ (D) none of these

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Q.No.11 → $\int \frac{\cos(2x)}{(\cos x+\sin x)^2} dx$

(A) $\log|\sin x-\cos x|+c$ (B) $\sin x+\cos x+c$ (C) $\log|\sin x+\cos x|+c$ (D) None of these

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Q.No:12 → $\int \frac{1}{x-\sqrt{x}} dx$

(A) $\log|\sqrt{x}-1|+c$ (B) $\sqrt{x}-\frac{x^3}{2}+c$ (C) $\log|x-\sqrt{x}|+c$ (D) $2\log|\sqrt{x}-1|+c$

Q.No.13 → $\int \frac{x}{e^{x^2}} dx$

(A) $-\frac{1}{2e^{x^2}}+c$ (B) $\log|e^{x^2}|+c$ (C) $\frac{e^{x^2}}{2}+c$ (D) None of these

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Q.No:14 → If $\frac{d}{dx}(f(x)) = 4x^3 - \frac{3}{x^4}$, such that $f(2)=0$ then $f(x)$ is

(A) $x^3+\frac{1}{x^4}+\frac{129}{8}$ (B) $x^4+\frac{1}{x^3}-\frac{129}{8}$ (C) $x^4+\frac{1}{x^3}+\frac{129}{8}$ (D) None of these

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Q.N: 15 → Equation of normal to the curve $y = \tan x$ at $(0,0)$ is

(A) $x = y$ (B) $x + y = 0$ (C) $x + y = 1$ (D) $x - y = 1$

Q.N: 16 → $f(x) = x^x$ has a stationary point at

(A) $x = e$ (B) $x = 1$ (C) $x = \sqrt{e}$ (D) $x = e^{-1}$

Q.N. 17 → At $x = \frac{5\pi}{6}$, $f(x) = 2\sin(3x) + 3\cos(3x)$ is

(A) Maximum (B) Minimum (C) point of Inflexion (D) Zero

Q.N. 18 → Minimum value of $\sin x \cdot \cos x$ is

(A) $\frac{1}{2}$ (B) $-\frac{1}{2}$ (C) 0 (D) 1

Q.N. 19 → the function $f(x) = \tan x - x$

(A) always decreases (B) ~~always~~ never increases (C) always increases

(D) Sometimes increases sometimes decreases

Q.N. 20 → The point on the curve $y^2 = x$, where the tangent makes an angle of $\pi/4$ with X-axis is

(A) $(\frac{1}{2}, \frac{1}{4})$ (B) $(4, 2)$ (C) $(\frac{1}{4}, \frac{1}{2})$ (D) $(1, 1)$

Q.N. 21 → The tangent to the curve given by $x = e^t \cos t$, $y = e^t \sin t$ at $t = \pi/4$ makes ~~an~~ an angle with X-axis is

(A) $\pi/2$ (B) $\pi/3$ (C) $\pi/4$ (D) 0

Q.N. 22 → function $f(x) = e^{2x}$ is strictly increasing on

(A) $(0, \infty)$ (B) $(-\infty, 0)$ (C) $(-\infty, \infty)$ (D) all of these

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Q.N. 23 → The logarithmic function is strictly increasing on

(A) $(-\infty, 0)$ (B) R (all Real Numbers) (C) $(0, \infty)$ (D) $(1, \infty)$

Q.N. 24 → points on the curve $\frac{x^2}{4} + \frac{y^2}{25} = 1$ at which the tangents are is parallel to y-axis are

(A) $(\pm 3, 0)$ (B) $(0, \pm 2)$ (C) $(\pm 4, 0)$ (D) $(\pm 2, 0)$

Q.N. 25 → Minimum value of $f(x) = |\sin(4x) + 3|$ is

(A) -1 (B) 0 (C) 1 (D) none of these

Q.N. 26 → the function $f(x) = x^3 + x^2 + x + 1$ is Maximum for

(A) $x \in (0, \infty)$ (B) $x \in \phi$ (C) $x \in \{-\frac{3}{2}, 1\}$ (D) None of these

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Q.N. 27 → The normal to the curve $x^2 = 4y$ at the point $(1, 2)$ is

(A) $x - y = 0$ (B) $x + y = 3$ (C) $2x + y = 4$ (D) $x + y = 0$

Q.N. 28 → Absolute Maximum value of $f(x) = \sin x + \cos x$; $x \in [0, \pi]$ is

(A) 2 (B) 1 (C) 4 (D) $\sqrt{2}$

Q.N. 29 → $f(x) = |\cos x - \sin x|$; then $f'(\pi/3)$ is

(A) $\frac{\sqrt{3}+1}{2}$ (B) $\frac{\sqrt{3}-1}{2}$ (C) 0 (D) $\frac{1-\sqrt{3}}{2}$

Q.N. 30 → If $x = t^2$, $y = t^3$, then $\frac{d^2y}{dx^2}$ is

(A) $\frac{3}{4t}$ (B) $\frac{3}{2t}$ (C) $\frac{3}{4}$ (D) $\frac{4t}{3}$

Qns: 31 → Derivative of $\cos^{-1}(2x^2-1)$ w.r.t $\cos^{-1}x$ is

(A) $\frac{-1}{2\sqrt{1-x^2}}$ (B) $\frac{2}{x}$ (C) 2 (D) $\sqrt{1-x^2}$

Qns 32 → If $y = \log\left(\frac{1-x^2}{1+x^2}\right)$, then $\frac{dy}{dx}$ is equal to

(A) $\frac{4x^3}{1-x^4}$ (B) $\frac{-4x^3}{1-x^4}$ (C) $\frac{4x}{1-x^4}$ (D) $\frac{-4x}{1-x^4}$

Qns: 33 → If $f(x) = 2x$ & $g(x) = \frac{x^2}{2} + 1$, then which of the following can be a discontinous function

(A) $\frac{g(x)}{gx}$ (B) $f(x) - g(x)$ (C) $f(x) \cdot g(x)$ (D) $f(x) * g(x)$

Qns 34 → the function $f(x) = \frac{4-x^2}{4x-x^3}$ is discontinous at

(A) only one point (B) at exactly three points (C) at exactly two points
(D) None of these

Qns 35 → derivative of $\sec^{-1}\left(\frac{1}{4x^3-3x}\right)$ is

(A) $\frac{-1}{\sqrt{1-x^2}}$ (B) $\frac{-3}{\sqrt{1-x^2}}$ (C) $\frac{3}{\sqrt{1-x^2}}$ (D) $\frac{1}{\sqrt{1-x^2}}$

Qns 36 → If $x = 3\sin t - \sin(3t)$ & $y = 3\cos t - \cos(3t)$
then $\frac{dy}{dx}$ at $t = \pi/3$ is

(A) $\frac{1}{\sqrt{3}}$ (B) $\frac{-2}{\sqrt{3}}$ (C) $\sqrt{3}$ (D) None of these

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Qns 37 → If $y = \sec^{-1}\left(\frac{\sqrt{x}+1}{\sqrt{x}-1}\right) + \sin^{-1}\left(\frac{\sqrt{x}-1}{\sqrt{x}+1}\right)$, then $\frac{dy}{dx}$ equals to

(A) $\frac{1}{\sqrt{x}-1}$ (B) $\frac{\sqrt{x}+1}{\sqrt{x}-1}$ (C) Zero (D) $\pi/2$

Q.N.38 → value of 'k' which makes the function defined by $f(x) = \begin{cases} \sin(1/x) & : x \neq 0 \\ k & : x = 0 \end{cases}$ continuous at $x=0$ is

(A) 1 (B) does not exist (C) -1 (D) 8

Q.N.39 → The number of points at which the function $f(x) = \frac{1}{x-[x]}$ is not continuous is

(A) 1 (B) 2 (C) Infinite (D) 3

Q.N.40 → value of 'k' for which $f(x) = \begin{cases} \frac{1-\cos(4x)}{8x^2} & : x \neq 0 \\ k & : x = 0 \end{cases}$ is continuous at $x=0$ is

(A) $k=-1$ (B) $k=2$ (C) $k=1$ (D) None of these

Q.N.41 → The set of points where the function $f(x)$ given by $f(x) = |x-3|\cos x$ is differentiable is

(A) $R-\{3\}$ (B) R (C) $x \in \{3\}$ (D) $(0, \infty)$

Q.N.42 → derivative of $y = \sin^{-1}x + \sin^{-1}\sqrt{1-x^2}$ is

(A) $\frac{-2x}{\sqrt{1-x^2}}$ (B) zero (C) $\frac{-2x+1}{\sqrt{1-x^2}}$ (D) $\frac{1}{\sqrt{1-x^2}}$

Q.N.43 → derivative of $f(x) = \sin^{-1}\left(\frac{2^{x+1}}{1+4^x}\right)$ is

(A) $\frac{2^x}{1+4^x}$ (B) $\frac{2\log 2}{1+4^x}$ (C) $\frac{2^{x+1}\cdot \log 2}{1+4^x}$ (D) $\frac{2^x \cdot \log 2}{1+4^x}$

Q.No. 44 → derivative of $\tan^{-1}\left(\frac{3a^2x - x^3}{a^3 - 3ax^2}\right)$ is

(A) $\frac{1}{x^2+a^2}$ (B) $\frac{3}{x^2+a^2}$ (C) $3\tan^{-1}\left(\frac{x}{a}\right)$ (D) $\frac{3a}{a^2+x^2}$

Q.No. 45 → $f(x) = |\cos x|$, then

(A) f is everywhere differentiable

(B) f is everywhere continuous but not Differentiable at $x = n\pi$

(C) f is everywhere continuous but not Differentiable at $x \in R$

(D) f is everywhere continuous but not Differentiable at $x = (2n+1)\frac{\pi}{2}, n \in Z$

Q.No. 46 → Minimum value of $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1+\sin\theta & 1 \\ 1 & 1 & 1+\cos\theta \end{vmatrix}$ is

(A) $\frac{1}{2}$ (B) $\sqrt{2}$ (C) $-\frac{1}{2}$ (D) Zero

Q.No. 47 → If the determinant $\begin{vmatrix} x+a & p+u & l+f \\ y+b & q+v & m+g \\ z+c & r+w & n+h \end{vmatrix}$ splits in to exakly 'k' determinants of order 3, each element of which contains only one term, then value of k is

(A) $k=3$ (B) $k=6$ (C) $k=8$ (D) $k=12$

Q.No. 48 → If A and B are matrices of order 3 and $|A|=5$ and $|B|=3$, then $|3AB|$ is equal to

(A) 45 (B) 135 (C) 450 (D) 405

Q.No: 49 → The sum of the products of elements of any row with the cofactors of another row is equal to

(A) ~~value of the~~

(A) zero (B) value of determinant (C) 1 (D) none of these

Q.No. 50 → If A is a matrix of order 3 such that $|A| = -3$ then $|A^4|$ and $|A^{-1}|$ respectively are

(A) 81, $-\frac{1}{3}$ (B) Not sufficient data (C) 3, 3 (D) $-81, -3$

Q.No: 51 → The points $(a+5, a-4)$, $(a-2, a+3)$, (a, a) lie on a line for

(A) $a = 3$ (B) for all values of a (C) for No value of a (D) for $a = -2$

Q.No. 52 → If $A = \begin{bmatrix} 2 & \lambda & -3 \\ 0 & 2 & 5 \\ 1 & 1 & 3 \end{bmatrix}$, then A^{-1} exists if

(A) $\lambda = 2$ (B) $\lambda \neq 2$ (C) $\lambda \neq -2$ (D) none of these

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Q.No. 53 → If $\begin{vmatrix} x & 2 \\ 18 & x \end{vmatrix} = \begin{vmatrix} 6 & 2 \\ 18 & 6 \end{vmatrix}$ then x is equal to

(A) ± 6 (B) -6 (C) 6 (D) Not possible to find

Q.No. 54 → value of 'k' if area of triangle is 4 sq.cm units whose vertices are $(k, 0), (4, 0), (0, 2)$

(A) 8 (B) 0, 8 (C) ± 8 (D) 0, -8

Q.No. 55 → Minimum value of determinant $\begin{vmatrix} 1 & \sin\theta & 1 \\ -\sin\theta & 1 & \sin\theta \\ -1 & -\sin\theta & 1 \end{vmatrix}$ is

(A) 4 (B) 2 (C) -2 (D) -8

Q.No. 56 → the determinant $\begin{vmatrix} \cos\alpha\cos\beta & \cos\alpha\cos\beta & -\sin\alpha \\ -\sin\beta & \cos\beta & 0 \\ \sin\alpha\cos\beta & \sin\alpha\sin\beta & \cos\alpha \end{vmatrix}$

(A) depends upon α (B) depends upon β (C) depends upon both α and β

(D) independent of both α and β

Q.No. 57 → even Integral power of a skew-symmetric matrix is (A) Skymmetric Matrix (B) Skew-Symm Matrix

(C) Null Matrix (D) neither Symmetric nor Skewsymmetric

Q.No. 58 → If A and B are Square matrices of same order such that $|B| = 4$ and $AB = I$, then value of $|A|$ is

(A) 4 (B) 1/4 (C) Insufficient data (D) 4^3

Q.No. 59 → If A is an Invertible matrix, then which of the Pollowing is Not true

(A) $|A| \neq 0$ (B) $|A^{-1}| = \frac{1}{|A|}$ (C) $(A^2)^{-1} = (A^{-1})^2$ (D) $(A^T)^{-1} = (A^{-1})^T$

Q.No. 60 → Sum of two Skew Symmetric matrices is always

(A) Symmetric Matrix (B) Null Matrix

(C) Skewsymmetric Matrix (D) neither Symm. nor Skew Symm

Q.No. 61 → If A and B are symmetric matrices of same order then AB is symmetric if and only if

(A) $AB = BA$ (B) $A = B$ (C) $AB = I$ (D) $AB = O$

Q.No 62 → If A is a square matrix such that $A^2 = I$, then $(A-I)^3 + (A+I)^3 - 7A$ is equal to

(A) I − A (B) A (C) I + A (D) 3A

Q.No 63 → If A and B are two matrices of the order 3×m and 3×n respectively and m = n, then the order of matrix (5A − 2B) is

(A) m×3 (B) 3×3 (C) 3×n (D) m×n

Q.No 64 → If A and B are skew-symmetric matrices, then AB + BA is

(A) Skew symmetric Matrix (B) Null Matrix

(C) neither Symm nor Skew Symm (D) Symmetric Matrix

Q.No 65 → Matrices A and B will be Inverse of each other only if

(A) AB = BA (B) AB = BA = 0 (C) AB = 0, BA = I (D) AB = BA = I

Q.No 66 → If $A = \begin{bmatrix} \cos\alpha & -\sin\alpha \\ \sin\alpha & \cos\alpha \end{bmatrix}$, then $A + A' = I$, if the value of α is

(A) π/6 (B) π/3 (C) π (D) No value of α

Q.No 67 → If $F(x) = \begin{bmatrix} \cos x & -\sin x & 0 \\ \sin x & \cos x & 0 \\ 0 & 0 & 1 \end{bmatrix}$ then which is not correct?

(A) F(x) F(y) = F(y) · F(x) (B) F(x) F(y) = F(x+y) (C) $F\left(\frac{1}{2}\right) = I$

(D) F(0) = I

Qn. 68 → If $2\begin{bmatrix} x & z \\ y & t \end{bmatrix} + \begin{bmatrix} 3 & -3 \\ 0 & 6 \end{bmatrix} = 3\begin{bmatrix} 3 & 5 \\ 4 & 6 \end{bmatrix}$ then $x - y + z - t$ is equal to

(A) 2 (B) 18 (C) 15 (D) 0

Qn. 69 → If $A = \begin{bmatrix} i & 0 \\ 0 & i \end{bmatrix}$, $n \in N$, then A^{4n} equals to

(A) $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ (B) $\begin{bmatrix} i & 0 \\ 0 & i \end{bmatrix}$ (C) $\begin{bmatrix} 0 & i \\ i & 0 \end{bmatrix}$ (D) $\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$

Qn. 70 → If $AB = A$ and $BA = B$, where A & B are square matrices then

(A) $A^2 = A$, $B^2 = B$ (B) $A^2 \neq A$, $B^2 = B$ (C) $A^2 \neq A$, $B^2 \neq B$

(D) $A^2 = A$, $B^2 \neq B$

Qn. 71 → determinant of a skew symmetric matrix of even order is always

(A) zero (B) 1 (C) perfect square (D) not defined

Qn. 72 → If $A = \begin{bmatrix} 1 & 1 \\ 1 & 1 \end{bmatrix}$ satisfies $A^4 = \lambda A$, then value of λ is

(A) 4 (B) 16 (C) 1 (D) 8

Qn. 73 → Principal value of $\sin^{-1}\left[\cos\left(\sin^{-1}\frac{1}{2}\right)\right]$ is

(A) $\pi/3$ (B) $\pi/6$ (C) $\pi/2$ (D) $\pi/4$

Qn. 74 → The result $\tan^{-1}x - \tan^{-1}y = \tan^{-1}\left(\frac{x-y}{1+xy}\right)$ is true when value of xy is

(A) $xy < 1$ (B) $xy > -1$ (C) $xy < -1$ (D) $xy > 1$

Qn: 75 → value of $\cos^{-1}\left(\cos\left(\frac{14\pi}{3}\right)\right)$ is

(A) $\frac{\pi}{3}$ (B) $\frac{2\pi}{3}$ (C) $-\frac{\pi}{3}$ (D) $4\pi/3$

Qn 76 → value of $\cot\left[\cos^{-1}\left(\frac{7}{25}\right)\right]$ is

(A) $\frac{25}{24}$ (B) $\frac{25}{7}$ (C) $\frac{24}{25}$ (D) $7/24$

Qn 77 → If $\tan^{-1}x + \tan^{-1}y = \frac{4\pi}{5}$, then $\cot^{-1}x + \cot^{-1}y$ equals

(A) $\frac{\pi}{5}$ (B) $\frac{2\pi}{5}$ (C) $\frac{3\pi}{5}$ (D) π

Qn 78 → the value of $\sin\left(2\tan^{-1}(0.75)\right)$ is equal to

(A) .75 (B) .96 (C) 1.5 (D) 9.6

Qn 79 → The domain of the function defined by $f(x) = \sin^{-1}\sqrt{x-1}$ is

(A) $[-1,1]$ (B) $[0,1]$ (C) $[1,2]$ (D) none of these

Qn 80 → The value of $\sin^{-1}\left[\cos\left(\frac{33\pi}{5}\right)\right]$

(A) $\frac{3\pi}{5}$ (B) $-\frac{7\pi}{5}$ (C) $-\frac{\pi}{10}$ (D) $\frac{\pi}{10}$

Qn 81 → value of $\tan^{-1}\left(\tan\left(\frac{5\pi}{8}\right)\right) + \cos^{-1}\left(\cos\frac{13\pi}{8}\right)$ is

(A) zero (B) $\pi/6$ (C) $\pi/3$ (D) $3\pi/6$

Qn 82 → the value of $\tan^2(\sec^{-1}2) + \cot^2(\operatorname{cosec}^{-1}3)$ is

(A) 5 (B) 11 (C) 36 (D) None of these

Q.N 83 → value of expression $\sin\left[\cot^{-1}\left(\cos\left(\tan^{-1}1\right)\right)\right]$ is

(A) 0 (B) 1 (C) $\sqrt{\frac{2}{3}}$ (D) $\frac{1}{\sqrt{3}}$

Q.N 84 → $f(x) = \sin x + \sqrt{3}\cos x$ is Maximum when $x =$

(A) $\pi/3$ (B) $\pi/4$ (C) $\pi/2$ (D) $\pi/6$

Q.N. 85 → Stationary point of $f(x) = x \log x$ is

(A) 1 (B) e (C) -1 (D) e^{-1}

Q.N 86 → Any tangent to the curve $y = 2x^7 + 3x + 5$ is

(A) parallel to y-axis (B) make acute angle with X-axis

(C) parallel to X-axis (D) makes obtuse angle with X-axis

Q.N. 87 → Let the Relation R be defined on the set $A = \{1,2,3,4,5\}$ by $R = \{(a,b) : |a^2 - b^2| < 8\}$ then number of pairs in Relation R is

(A) 9 (B) 10 (C) 11 (D) 8

Q.N: 88 → $$f(x) = \begin{cases} 2x & ; \quad x > 3 \\ x^2 & ; \quad 1 < x \leq 3 \\ 3x & ; \quad x \leq 1 \end{cases}$$

then $f(-1) + f(2) + f(4)$ is

(A) 14 (B) 5 (C) 12 (D) 9

Q.N 89 → If Set A contains 5 elements and Set B contains 6 elements, then number of on-to functions from A to B are

(A) 0 (B) 30 (C) 5^6 (D) ${}^6P_5$

Qns 90 → Consider the non-empty set consisting of ~~children~~ Children in a family and a relation R defined as aRb if 'a is a brother of b' then R is

(A) transitive but not symmetric (B) Symmetric but not transitive (C) neither symm nor transitive (D) both symm. & transitive

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Qn 91 → Range of $f(x) = \frac{1}{2-\cos x}$ for all $x \in R$ is

(A) $[0,3]$ (B) $[1,3]$ (C) $[\frac{1}{3},1]$ (D) $(0,\infty)$

Qn 92 → If $n(A)=5$ and $n(B)=6$ then number of Injective functions are

(A) zero (B) 5! (C) 30 (D) 720

Qns 93 → Let $A=\{1,2,3,4,\ldots 9\}$ and R be the relation in AxA defined by $(a,b)\ R\ (c,d)$ if $a+d = b+c$ then equivalence class $[(2,5)]$ is

(A) $\{(1,4)(2,5)(3,6)(4,7)(5,8),(6,9)\}$ (B) $\{(4,1)(5,2)(6,3)(7,4),(8,5)(9,6)\}$

(C) $\{(5,2)\}$ (D) None of these

Qn 94 → If $f=\{(5,2),(6,3)\}$ and $g=\{(2,5),(3,6)\}$, then Range(f) ∩ Range(g) is

(A) $\{2,6\}$ (B) ϕ (C) $\{6\}$ (D) $\{2,3,5,6\}$ (15)

QNo 95 → $\int \frac{(x+1)(x+\log x)^2}{x} dx$ is

(A) $\log|x+\log x|+C$ (B) $\frac{(x+\log x)^3}{3}+C$ (C) $\frac{1}{x+\log x}+C$ (D) none of these

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QN-96 → Set A of human beings in a town at a particular time. Relation $R = \{(x,y): x \text{ is a wife of } y\}$ then R is (A) Symmetric (B) reflexive (C) both symmetric and reflexive (D) Transitive

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QN 97 → Let $f: R \to R$ be defined as $f(x) = x^4$. Choose the correct Answer

(A) f is neither one-one nor onto (B) f is one-one onto

(C) f is many one onto (D) f is one-one but not on-to

QN 98 → $2\tan^{-1}(\frac{1}{2}) + \tan^{-1}(\frac{1}{7})$ is equal to

(A) $\tan^{-1}(\frac{17}{13})$ (B) $\tan^{-1}(\frac{31}{17})$ (C) $\tan^{-1}(\frac{16}{17})$ (D) $\tan^{-1}(\frac{19}{17})$

QN-99 → $f(x) = \begin{cases} kx+1 & : x \le \pi \\ \cos x & ; x > \pi \end{cases}$ is continuous at $x = \pi$

then k is equal to

(A) $k = 5/9$ (B) $k = -\frac{5}{9}$ (C) $k = 9/5$ (D) $k = -9/5$

QN 100 → derivative of $\log_7(\log x)$ is

(A) $\frac{1}{x \log 7}$ (B) $\frac{1}{\log x \log 7}$ (C) $\frac{1}{x \log 7 \log x}$ (D) $\frac{1}{\log_7 x} \cdot \frac{1}{x}$

—x— End of TEST