

Navik GD Paper Mathematics 21 March 2021 (All Shifts)

20 Questions

Que. 1 If $\begin{vmatrix} 5x & -6 \\ 2 & 4 \end{vmatrix} = 12$, what is the value of x ?

1. 1
2. 0
3. 12
4. 2

Solution Correct Option - 2

Que. 2 If $y = \sin(\log \cos x)$ then what is the value of $\frac{dy}{dx}$

1. $\cos(\log(\cos x)) \cdot \tan x$
2. $\sin(\log(\cos x)) \cdot \tan x$
3. $-\cos(\log(\cos x)) \cdot \tan x$
4. $-\cos(\log(\sin x)) \cdot \tan x$

Solution Correct Option - 3

Que. 3 If $f(x) = x^3 + 3x^2 + 3x - 7$ then find the value of $\frac{d f(x)}{dx}$ at $x = 2$?

1. 23
2. 24
3. 27
4. 30

Solution Correct Option - 3

Que. 4 What is the value of $\frac{1}{\cos 330^\circ} - \frac{1}{\sqrt{3} \sin 240^\circ} = ?$

1. $\frac{2}{3}(1 - \sqrt{3})$
2. $\frac{2}{3}(1 + \sqrt{3})$
3. $\frac{1}{3}(1 + \sqrt{3})$
4. $\frac{1}{3}(1 - \sqrt{3})$

Solution Correct Option - 2

Que. 5 Find $\frac{d}{dx} \sin(e^{\sin 3\sqrt{x}}) = ?$

1. $\frac{3 \cos(e^{\sin 3\sqrt{x}}) e^{\cos 3\sqrt{x}} (\cos 3\sqrt{x})}{2\sqrt{x}}$
2. $\frac{3 \sin(e^{\sin 3\sqrt{x}}) e^{\sin 3\sqrt{x}} (\cos 3\sqrt{x})}{2\sqrt{x}}$
3. $\frac{3 \cos(e^{\sin 3\sqrt{x}}) e^{\sin 3\sqrt{x}} (\cos 3\sqrt{x})}{2\sqrt{x}}$

4. $\frac{3 \cos(e^{\sin 3\sqrt{x}})e^{\sin 3\sqrt{x}}(\sin 3\sqrt{x})}{2\sqrt{x}}$

Solution Correct Option - 3

Que. 6 If $\int_0^a \frac{1}{1+x^2} dx = \frac{\pi}{4}$ then, find the value of a ?

1. 1
2. 2
3. 3
4. 4

Solution Correct Option - 1

Que. 7 If $\tan a \cdot \tan\left(\frac{\pi}{3} + a\right) \cdot \tan\left(\frac{-\pi}{3} + a\right) = K \tan(3a)$ then, find the value of K ?

1. 1
2. 2
3. 3
4. 4

Solution Correct Option - 1

Que. 8 If $|\vec{a} \cdot \vec{b}| = |\vec{a} \times \vec{b}|$ then, find the angle between \vec{a} and \vec{b}

1. π
2. $\frac{\pi}{2}$
3. $\frac{\pi}{4}$
4. $\frac{\pi}{3}$

Solution Correct Option - 3

Que. 9 Find the value of $\int \frac{1-x^2}{1+x} dx$

1. x
2. $x - \frac{x^2}{2}$
3. $1 - \frac{x^2}{2}$
4. $x - 2x^2$

Solution Correct Option - 2

Que. 10 The integrating factor of the differential equation $\frac{dy}{dx} + xy = x$ is

1. $e^{-\frac{x^2}{2}}$
2. $e^{\frac{x^2}{2}}$
3. e^x
4. None of these

Solution Correct Option - 2

Que. 11 If α, β are the roots of the equation $3x^2 + 57x - 5 = 0$, then what is $\frac{\alpha^3 + \beta^3}{\alpha^{-3} + \beta^{-3}}$ equal to ?

1. - 27/125
2. 81/125
3. 27/125
4. -125/27

Solution Correct Option - 4

Que. 12 What is the value of $\lim_{x \rightarrow 0} \frac{(1 - \cos 2x)^2}{x^4}$

1. 1
2. 8
3. 4
4. 0

Solution Correct Option - 3

Que. 13 If $y = x^x$, what is $\frac{dy}{dx}$ at $x = 1$ equal to?

1. 0
2. 1
3. -1
4. 2

Solution Correct Option - 2

Que. 14 If AB^T is defined as a square matrix then what is the order of the matrix B, where matrix A has order 2×3 .

1. 3×3
2. 2×3
3. 4×2
4. 3×2

Solution Correct Option - 2

Que. 15 The value of 'a' such that the vector $2\hat{i} - \hat{j} + \hat{k}$, $\hat{i} + 2\hat{j} - 3\hat{k}$ and $3\hat{i} + a\hat{j} + 5\hat{k}$ are coplanar, is

1. 1
2. -2
3. 4
4. -4

Solution Correct Option - 4

Que. 16 What is the domain of the function $f(x) = \cos^{-1}(x - 2)$?

1. [-1, 1]
2. [1, 3]

3. $[0, 5]$
4. $[-2, 1]$

Solution Correct Option - 2

Que. 17 In a ΔABC , if $a = 18$, $b = 24$ and $c = 30$ then find the value of $\sin(A/2)$?

1. $\frac{1}{\sqrt{10}}$
2. $\frac{1}{\sqrt{5}}$
3. $\frac{1}{\sqrt{15}}$
4. None of these

Solution Correct Option - 1

Que. 18 Given that $\sin x + \cos x = 1$ determine the value of $\tan x$.

1. $\frac{1}{2}$
2. 0
3. 1
4. $\frac{1}{4}$

Solution Correct Option - 2

Que. 19 What is $\omega^{100} + \omega^{200} + \omega^{300}$ equal to, where ω is the cube root of unity?

1. 1
2. 3ω
3. $3\omega^2$
4. 0

Solution Correct Option - 4

Que. 20 The coefficient of x^2 in the expansion of $(4 - 5x^2)^{-1/2}$ is

1. $\frac{5}{16}$
2. $\frac{-5}{16}$
3. $\frac{5}{12}$
4. $\frac{-5}{12}$

Solution Correct Option - 1