Question Paper Preview

Question Paper Name :	Civil Engineering 14th Sep 2020 S1
Subject Name :	Civil Engineering
Duration :	180
Total Marks :	200
Display Marks:	No
Share Answer Key With Delivery Engine :	Yes
Actual Answer Key :	Yes
Is this Group for Examiner? :	No

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Mathematics

Section Number :	1
Mandatory or Optional :	Mandatory
Number of Questions :	50
Number of Questions to be attempted :	50
Section Marks :	50
Display Number Panel :	Yes
Group All Questions :	Yes
Mark As Answered Required? :	Yes

Question Number : 1 Question Id : 61097513429 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

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If $\begin{vmatrix} 15-x & 11 & 10 \\ 11-3x & 17 & 16 \\ 7-x & 14 & 13 \end{vmatrix}=0$ then the value of x is

Options :

1. 6

2. 5

3. 7

4. -6

Question Number : 2 Question Id : 61097513430 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The co-factors of the elements 2,-5 in the matrix $\begin{pmatrix} -1 & 0 & 5 \\ 1 & 2 & -2 \\ -4 & -5 & 3 \end{pmatrix}$ is

Options :

1. 16.3

2. 17.-3

3. 17.3

4. -17.-3

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Question Number : 3 Question Id : 61097513431 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The solution of the following simultaneous linear equations by using Cramer's rule 3x+4y+5z=18; 2x-y+8z=13; 5x-2y+7z=20 is

Options :

1. -3.-1.1

2. 3.1.1

3. 3.0.1

4. 3.1.-1

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Question Number : 4 Question Id : 61097513432 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If $A = \begin{pmatrix} 0 & 4 & -2 \\ -4 & 0 & 8 \\ 2 & -8 & x \end{pmatrix}$ is a skew symmetric matrix then the value of x is

Options :

1. 1

2. -8

3. -4

4. 0

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Question Number : 5 Question Id : 61097513433 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The adjoint of the matrix $A = \begin{pmatrix} 1 & 3 & 3 \\ 1 & 4 & 3 \\ 1 & 3 & 4 \end{pmatrix}$ is

Options :

1. $\begin{pmatrix} 0 & 4 & -2 \\ 4 & -2 & 8 \\ 2 & -8 & 0 \end{pmatrix}$

2. $\begin{pmatrix} 7 & -3 & -3 \\ -1 & 1 & 0 \\ -1 & 0 & 1 \end{pmatrix}$

3. $\begin{pmatrix} 7 & 3 & 3 \\ 1 & 1 & 0 \\ 1 & 0 & 1 \end{pmatrix}$

4. $\begin{pmatrix} 5 & 4 & 2 \\ 4 & 2 & 8 \\ 2 & -8 & 0 \end{pmatrix}$

Question Number : 6 Question Id : 61097513434 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Resolve the rational function $\frac{5x+1}{(x+2)(x-1)}$ into partial fractions

Options :

1. $\frac{3}{x+2} + \frac{2}{x-1}$

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2. $\frac{3}{x+2}-\frac{2}{x-1}$

3. $\frac{-3}{x+2}+\frac{2}{x-1}$

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

Question Number : 7 Question Id : 61097513435 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Resolve the rational function $\frac{x^2}{(x^2+1)^2}$ into partial fractions

Options :

1. $\frac{x}{x^2+1}+\frac{x}{(x^2+1)^2}$

2. $\frac{x}{x^2-1}-\frac{x}{(x^2+1)^2}$

3. $\frac{x}{x^2+1}-\frac{x}{(x^2-1)^2}$

4. $\frac{x}{x^2+1}-\frac{x}{(x^2+1)^2}$

Question Number : 8 Question Id : 61097513436 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

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Suppose that A, B, C are positive and $A + B + C = 90^0$ then the value of $\sum tanA\ tanB$ is

Options :

1. -1

2. -2

3. 1

4. 3

Question Number : 9 Question Id : 61097513437 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The value of $cos100^0 cos40^0 + sin100^0 sin40^0$ is

Options :

1. $\frac{1}{2}$

2. $-\frac{1}{2}$

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

4. $\frac{1}{8}$

Question Number : 10 Question Id : 61097513438 Question Type : MCQ Display Question

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Number : Yes Is Question Mandatory : No Single Line Question Option : No Option

Orientation : Vertical

If $\frac{cos\alpha}{a} = \frac{sin\alpha}{b}$ then the value of $acos2\alpha + bsin2\alpha$ is

Options :

1. $-a$

2. b

3. a

4. $-a$

Question Number : 11 Question Id : 61097513439 Question Type : MCQ Display Question

Number : Yes Is Question Mandatory : No Single Line Question Option : No Option

Orientation : Vertical

If $x + \frac{1}{x} = 2cos\theta$ then the value of $x^3 + \frac{1}{x^3}$ is

Options :

1. $2cos3\theta$

2. $2cos2\theta$

3. $3cos3\theta$

4. $2sin3\theta$

Question Number : 12 Question Id : 61097513440 Question Type : MCQ Display Question

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Number : Yes Is Question Mandatory : No Single Line Question Option : No Option

Orientation : Vertical

If $sinx + siny = \frac{1}{4}$ and $cosx + cosy = \frac{1}{3}$ then the value of $tan\left(\frac{x+y}{2}\right)$ is

Options :

1. $-\frac{3}{4}$

2. $\frac{5}{4}$

3. $\frac{7}{4}$

4. $\frac{3}{4}$

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Question Number : 13 Question Id : 61097513441 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option

Orientation : Vertical

The general solution for $\sqrt{3}cos\theta = sin\theta$ is

Options :

1. $-n\pi + \frac{\pi}{3}$

2. $n\pi + \frac{\pi}{3}$

3. $n\pi - \frac{\pi}{3}$

4. $n\pi + \frac{2\pi}{3}$

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Question Number : 14 Question Id : 61097513442 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The common solution for $cos\theta = -\frac{1}{\sqrt{2}}, tan\theta = -1$ is

Options :

1. $n\pi + \frac{2\pi}{3}$

2. $2n\pi + \frac{5\pi}{3}$

3. $5n\pi + \frac{\pi}{3}$

4. $2n\pi + \frac{3\pi}{4}$

Question Number : 15 Question Id : 61097513443 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If x is an acute angle and $sin(x + 10^0) = cos(3x - 68^0)$ then the value of x is

Options :

1. -37^0

2. 37^0

3. 38^0

4. 10^0

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Question Number : 16 Question Id : 61097513444 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The value of $tan^{-1}(2) + tan^{-1}(3)$ is

Options :

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

2. $\frac{3\pi}{5}$

3. $\frac{5\pi}{4}$

4. $\frac{\pi}{4}$

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Question Number : 17 Question Id : 61097513445 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The value of $cos\left[sin^{-1}\left(\frac{1}{2}\right) + cos^{-1}\left(-\frac{\sqrt{3}}{2}\right)\right]$ is

Options :

1. 0

2. 1

3. 3

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4. -1

Question Number : 18 Question Id : 61097513446 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The modulus of the complex number $(-1-\sqrt{3}i)$ is

Options :

1. 1

2. 6

3. 2

4. 4

Question Number : 19 Question Id : 61097513447 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The value of $\left(\frac{\sqrt{3}}{2}+\frac{i}{2}\right)^5-\left(\frac{\sqrt{3}}{2}-\frac{i}{2}\right)^5$ is

Options :

1. i

2. $-i$

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3. $2i$

4. $-3i$

Question Number : 20 Question Id : 61097513448 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The radius of the circle of the equation $x^2 + y^2 - 4x - 8y - 41 = 0$ is

Options :

1. $\sqrt{31}$

2. $\sqrt{41}$

3. $\sqrt{71}$

4. $\sqrt{61}$

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Question Number : 21 Question Id : 61097513449 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If the line $2y = 5 + k$ is a tangent to the parabola $y^2 = 6x$ then the value of k is

Options :

1. $\frac{2}{5}$

2.

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3. $\frac{3}{5}$

3. $\frac{6}{5}$

4. $\frac{7}{5}$

Ans : no correct option

Question Number : 22 Question Id : 61097513450 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The length of latus rectum of the ellipse $9x^2 + 16y^2 = 144$ is

Options :

1. $\frac{7}{2}$

2. $\frac{9}{2}$

3. $\frac{3}{2}$

4. $\frac{5}{2}$

Question Number : 23 Question Id : 61097513451 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The centre of the hyperbola $4x^2 - 5y^2 - 16x + 10y + 31 = 0$ is

Options :

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1. $(2,1)$

2. $(3,1)$

3. $(-2,1)$

4. $(2,-1)$

Question Number : 24 Question Id : 61097513452 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The angle between two tangents drawn from the point $(1,4)$ to the parabola $y^2 = 12x$ is

Options :

1. $tan^{-1}(2)$

2. $tan^{-1}(3)$

3. $tan^{-1}(5)$

4. $tan^{-1}\left(\frac{1}{2}\right)$

Question Number : 25 Question Id : 61097513453 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The length of the tangent from $(1,3)$ to the circle $x^2 + y^2 - 2x + 4y - 11 = 0$ is

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Options :

1. -3

2. 3

3. 5

4. 4

Question Number : 26 Question Id : 61097513454 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The value of $\lim_{x\to 0}\left(\frac{\sqrt{1+x}-1}{x}\right)$ is

Options :

1. $\frac{1}{3}$

2. $-\frac{1}{3}$

3. $\frac{1}{5}$

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

Question Number : 27 Question Id : 61097513455 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option

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Orientation : Vertical

The derivative of $f(x) = \frac{a-x}{a+x}$ $(x \neq -a)$ is

Options :

1. $\frac{-2a}{(a+x)^2}$

2. $\frac{2a}{(a+x)^2}$

3. $\frac{-2a}{(a-x)^2}$

4. $\frac{2a}{(a-x)^2}$

Question Number : 28 Question Id : 61097513456 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If $x = a\left[\cos t + log\left(tan\frac{t}{2}\right)\right]$, $y = a \sin t$ then $\frac{dy}{dx}$ is

Options :

1. $-\tan t$

2. $\tan t$

3. $\tan t + \sin t$

4. $\sin t$

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Question Number : 29 Question Id : 61097513457 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If an error of 3% occurs in measuring the side of a cube then the percentage error in its volume is

Options :

1. -9

2. 7

3. 8

4. 9

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Question Number : 30 Question Id : 61097513458 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The slope of the tangent to the curve $y = 5x^2$ at the point $x = -1$ is

Options :

1. 10

2. 7

3. -10

4. -9

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Question Number : 31 Question Id : 61097513459 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The angle between the curves $xy = 2$ and $x^2 + 4y = 0$ is

Options :

1. $-tan^{-1}(3)$

2. $tan^{-1}(3)$

3. $sin^{-1}(3)$

4. $cos^{-1}(3)$

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Question Number : 32 Question Id : 61097513460 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

For all values of a and b, $f(x) = x^3 + 3ax^2 + 3a^2x + 3a^3 + b$ is

Options :

1. Increasing only

2. Decreasing only

3. Increasing and Decreasing

4. maximum

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Question Number : 33 Question Id : 61097513461 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The minimum value of $f(x) = 4x^2 - 4x + 11$ for any x in R is

Options :

1. $-10 \ at \ x = \frac{1}{2}$

2. $10 \ at \ x = -\frac{1}{2}$

3. $8 \ at \ x = \frac{1}{2}$

4. $10 \ at \ x = \frac{1}{2}$

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Question Number : 34 Question Id : 61097513462 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If $z = log(\tan x + \tan y)$ then $(\sin 2x)\frac{\partial z}{\partial x} + (\sin 2y)\frac{\partial z}{\partial y}$ is

Options :

1. 2

2. -2

3. 4

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4. 6

Question Number : 35 Question Id : 61097513463 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If $u = tan^{-1}\left(\frac{x^3+y^3}{x+y}\right)$ then $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y}$ is

Options :

1. $-\frac{1}{2}\sin 2u$

2. $-\frac{1}{2}\cos 2u$

3. $\frac{1}{2}\sin 2u$

4. $\frac{1}{2}\tan 2u$

Ans : no correct option

Question Number : 36 Question Id : 61097513464 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The value of $\int sin^2 x\, dx$ on R is

Options :

1. $\frac{x}{2} + \frac{\sin 2x}{4} + c$

2. $\frac{x}{2} - \frac{\sin 3x}{4} + c$

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3. $\frac{x}{2}-\frac{\cos 2x}{4}+c$

4. $\frac{x}{2}-\frac{\sin 2x}{4}+c$

Question Number : 37 Question Id : 61097513465 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The value of $\int x\sqrt{x}\,dx$ on $(0,\infty)$ is

Options :

1. $\frac{2}{5}x^{5/2}+c$

2. $-\frac{2}{5}x^{5/2}+c$

3. $\frac{2}{5}x^{-5/2}+c$

4. $\frac{2}{3}x^{3/2}+c$

Question Number : 38 Question Id : 61097513466 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The value of $\int_0^2 \sqrt{4-x^2}\,dx$ is

Options :

1.

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2. $-\frac{\pi}{2}$

3. π

4. $-\pi$

Question Number : 39 Question Id : 61097513467 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The value of $\int_{\pi/6}^{\pi/3} \frac{\sqrt{\sin x}}{\sqrt{\sin x}+\sqrt{\cos x}} dx$ is

Options :

1. $\frac{\pi}{2}$

2. $\frac{\pi}{12}$

3. $-\frac{\pi}{12}$

4. π

Question Number : 40 Question Id : 61097513468 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option

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Orientation : Vertical

The area enclosed by the curves $y = 3x$ and $y = 6x - x^2$ in square units is

Options :

1. $\frac{7}{2}$

2. $\frac{5}{2}$

3. $\frac{3}{2}$

4. $\frac{9}{2}$

Question Number : 41 Question Id : 61097513469 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option

Orientation : Vertical

The value of $\int \frac{e^x(1+x)}{(2+x)^2}\,dx$ on $I \in R \setminus\{-2\}$ is

Options :

1. $\frac{e^x}{2+x} + C$

2. $-\frac{e^x}{2+x} + C$

3. $\frac{e^x}{2-x} + C$

4. $\frac{e^{2x}}{2+x} + C$

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Question Number : 42 Question Id : 61097513470 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The value of $\int \frac{1}{1+4x^2}\,dx$ on R is

Options :

1. $-\frac{1}{2}tan^{-1}(2x)+c$

2. $\frac{1}{2}tan^{-1}(5x)+c$

3. $-\frac{1}{2}tan^{-1}(x)+c$

4. $\frac{1}{2}tan^{-1}(2x)+c$

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Question Number : 43 Question Id : 61097513471 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The value of $\int \frac{2x^2-5x+1}{x^2(x^2-1)}\,dx$ is

Options :

1. $\frac{1}{x}+\log\left|\frac{x^5}{(x^2-1)(x+1)^3}\right|+C$

2. $\frac{1}{x}-\log\left|\frac{x^5}{(x^2-1)(x+1)^3}\right|+C$

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3. $\frac{1}{x}+\log\left|\frac{x^5}{(x^2+1)(x+1)^3}\right|+C$

4. $\frac{1}{x}-\log\left|\frac{x^5}{(x^2+1)(x+1)^3}\right|+C$

Question Number : 44 Question Id : 61097513472 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The solution of $\frac{dy}{dx}=\frac{x-2y+1}{2x-4y}$ is

Options :

1. $(x+2y)^2+2x=c$

2. $(x-2y)^2-2x=c$

3. $(x-2y)^2+2x=c$

4. $(x-4y)^2+2x=c$

Question Number : 45 Question Id : 61097513473 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The solution of the homogeneous differential equation $xy^2\,dy-(x^3+y^3)\,dx=0$ is

Options :

1. $y^3=-3x^3\log(xc)$

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2. $y^3 = 3x^3 \log(x/c)$

3. $y^3 = 3x^3 \log(x^2 c)$

4. $y^3 = 3x^3 \log(xc)$

Question Number : 46 Question Id : 61097513474 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The solution of the linear differential equation $\frac{dy}{dx} + y \cot x = \cos x$ is

Options :

1. $y - \sin x = -\frac{\cos 2x}{4} + c$

2. $y / \sin x = -\frac{\cos 2x}{4} + c$

3. $y \sin x = -\frac{\cos 2x}{4} + c$

4. $y \sin x = \frac{\cos 2x}{4} + c$

Question Number : 47 Question Id : 61097513475 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

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The solution of Bernoulli's equation $x^3\frac{dy}{dx} - x^2y = -y^4\cos x$ is

Options :

1. $\frac{x^3}{y^3} = 3\sin x + c$

2. $\frac{x^3}{y^3} = -3\sin x + c$

3. $\frac{x^3}{y^3} = 3\sin x^3 + c$

4. $\frac{x^4}{y^4} = 3\sin x + c$

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Question Number : 48 Question Id : 61097513476 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The particular integral for the differential equation $(D^2 + 3D + 2)y = 12x^2$ is

Options :

1. $6x^2 + 18x - 21$

2. $6x^2 - 18x + 21$

3. $-6x^2 + 18x - 21$

4. $6x^2 + 18x + 21$

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Question Number : 49 Question Id : 61097513477 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The particular integral for the differential equation $6\frac{d^2y}{dx^2} + 17\frac{dy}{dx} + 12y = e^{-x}$ is

Options :

1. $-e^{-x}$

2. e^{x}

3. e^{-2x}

4. e^{-x}

Question Number : 50 Question Id : 61097513478 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The particular integral for the differential equation $(D^2 - 4D + 13)y = \cos 2x$ is

Options :

1. $\frac{1}{145}(9\cos 2x - 8\sin 2x)$

2. $\frac{1}{145}(9\cos 2x + 8\sin 2x)$

3. $\frac{1}{145}(-9\cos 2x - 8\sin 2x)$

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4. $\frac{1}{135}(9\cos 2x - 8\sin 2x)$

Physics

Section Number : 2

Mandatory or Optional : Mandatory

Number of Questions : 25

Number of Questions to be attempted : 25

Section Marks : 25

Display Number Panel : Yes

Group All Questions : Yes

Mark As Answered Required? : Yes

Question Number : 51 Question Id : 61097513479 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Young's modulus of steel is 2×10^{11} N m^{-2}. Its value in dyne cm^{-2} is

Options :

1. 2×10^{12}

2. 2×10^{10}

3. 2×10^{8}

4. 2×10^{-11}

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Question Number : 52 Question Id : 61097513480 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Dimension of velocity gradient is

Options :

1. $[M^0L^0T^{-1}]$

2. $[ML^{-1}T^{-1}]$

3. $[M^0LT^{-1}]$

4. $[ML^0T^{-1}]$

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Question Number : 53 Question Id : 61097513481 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Unit vector parallel to the resultant of vectors $A = 4\hat{i} - 3\hat{j}$ and $B = 8\hat{i} + 8\hat{j}$ will be

Options :

1. $\frac{24\hat{i}+5\hat{j}}{13}$

2. $\frac{12\hat{i}+5\hat{j}}{13}$

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3. $\frac{6\hat{i}+5\hat{j}}{13}$

4. $\frac{12\hat{i}-5\hat{j}}{13}$

Question Number : 54 Question Id : 61097513482 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The resultant of two forces 3P and 2P is R. If the first force is doubled. then the resultant is also doubled. The angle between the two forces is

Options :

1. 60^0

2. 120^0

3. 30^0

4. 135^0

Question Number : 55 Question Id : 61097513483 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A particle is projected vertically upward with a speed of 40 m/s. then the velocity of the particle 2 seconds before it reaches the maximum height is (Take $g = 10\ m\ s^{-2}$)

Options :

1.

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$20\ m\ s^{2}$

2. $4.2\ m\ s^{2}$

3. $9.8\ m\ s^{2}$

4. $10\ m\ s^{2}$

Question Number : 56 Question Id : 61097513484 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A car moving with constant acceleration covered the distance between two points 60 m apart in 6 s. Its speed as it passes the second point was 15 m s. The acceleration is

Options :

1. $\frac{1}{3}\ ms^{-2}$

2. $\frac{2}{3}\ ms^{-2}$

3. $\frac{3}{5}\ ms^{-2}$

4. $\frac{5}{3}\ ms^{-2}$

Question Number : 57 Question Id : 61097513485 Question Type : MCQ Display Question

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Number : Yes Is Question Mandatory : No Single Line Question Option : No Option

Orientation : Vertical

A stone is thrown vertically upwards. When stone is at half of its maximum height, its speed is 10 ms^{-1}: then the maximum height attained by the stone is ($g=10m\ s^{-2}$)

Options :

1. 25m

2. 10m

3. 15m

4. 20m

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Question Number : 58 Question Id : 61097513486 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option

Orientation : Vertical

Identify the correct statement.

Options :

1. Static friction depends on the area of contact.

2. Kinetic friction depends on the area of contact.

3. Coefficient of static friction does not depend on the area of the surface in contact.

4. Coefficient of kinetic friction is less than the coefficient of static friction.

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Question Number : 59 Question Id : 61097513487 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The coefficient of friction between the tyres and the road is 0.25. The maximum speed with which a car can be driven round a curve of radius 40 m without skidding is (assume g=10m s^{-2})

Options :

1. $40\ ms^{-1}$

2. $20\ ms^{-1}$

3. $15\ ms^{-1}$

4. $10\ ms^{-1}$

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Question Number : 60 Question Id : 61097513488 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

During a projectile motion. if the maximum height is equal to the horizontal range. then the angle of projection with the horizontal is

Options :

1. $\tan^{-1}(1)$

2. $\tan^{-1}(2)$

3. $\tan^{-1}(4)$

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4. $\tan^{-1}(3)$

Question Number : 61 Question Id : 61097513489 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The potential energy of a certain spring when stretched through a distance S is 10 joule. The amount of work (in joule) that must be done on this spring to stretch it through additional distance S will be

Options :

1. 30

2. 40

3. 10

4. 20

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Question Number : 62 Question Id : 61097513490 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A machine gun fires six bullets per second into a target. The mass of each bullet is 3 g and the speed is 500 m/s. The power delivered to the bullets is

Options :

1. 1.5 kW

2. 2.25 kW

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3. 0.75 kW

4. 375 kW

Question Number : 63 Question Id : 61097513491 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following is the cheapest renewable energy ?

Options :

1. Solar energy

2. Wind energy

3. Hydel energy

4. Nuclear energy

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Question Number : 64 Question Id : 61097513492 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The maximum velocity of particle executing simple harmonic motion with an amplitude of 7 mm is 4.4 m s. The time period of oscillation is

Options :

1. 100 s

2. 10 s

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3. $0.1\ s$

4. $0.01\ s$

Question Number : 65 Question Id : 61097513493 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Two waves of lengths 50 cm and 51 cm produced 12 beats per second. The velocity of sound is

Options :

1. $340\ m\ s$

2. $331\ m\ s$

3. $306\ m\ s$

4. $360\ m\ s$

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Question Number : 66 Question Id : 61097513494 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The apparent frequency of the whistle of an engine changes in the ratio 9:8 as the engine passes a stationary observer. If the velocity of the sound is 340 ms^{-1}, then the velocity of the engine is

Options :

1. $40\ m\ s$

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2. 20 m s

3. 340 m s

4. 180 m s

Question Number : 67 Question Id : 61097513495 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Quality of sound is decided by

Options :

1. loudness

2. intensity

3. number of overtones

4. frequency

Question Number : 68 Question Id : 61097513496 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Inaudibility limit is

Options :

1. one hundredth of initial intensity

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2. one tenth of initial intensity

3. one thousandth of initial intensity

4. one millionth of initial intensity

Question Number : 69 Question Id : 61097513497 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A Carnot's engine operates with source at 127^0C and sink at 27^0C. If the source supplies 40 kJ of heat energy, the work done by the engine is

Options :

1. 30 kJ

2. 10 kJ

3. 4 kJ

4. 1 kJ

Question Number : 70 Question Id : 61097513498 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A monoatomic gas initially at 17^0C is suddenly compressed to one eighth of its original volume. The temperature after compression is

Options :

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1. 1160K

2. 36.25K

3. 2320K

4. 887K

Question Number : 71 Question Id : 61097513499 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Two cylinders of volumes 20 cc and 30 cc have gases at pressures 40 cm and 50 cm of Hg under the same temperature. If they are connected by a very narrow pipe the pressure in cm of Hg will be

Options :

1. 45

2. 50

3. 46

4. 15

Question Number : 72 Question Id : 61097513500 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

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In an adiabatic expansion, a gas does 25J of work while in an adiabatic compression 100J of work is done on a gas. The change of internal energy in the two processes repectively are

Options :

1. 25J and -100J

2. - 25J and 100J

3. -25J and -100J

4. 25J and 100J

Question Number : 73 Question Id : 61097513501 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The volume of one mole of an ideal gas changes from V to 2V at temperature of 300 K. If R is universal gas constant, then work done in this process is

Options :

1. $300Rln2$

2. 600Rln2

3. 300ln2

4. 600ln2

Question Number : 74 Question Id : 61097513502 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

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The maximum kinetic energy of the photoelectrons emitted from a surface is dependent on the

Options :

1. intensity of incident radiation

2. potential of the collector electrode

3. frequency of incident radiation

4. angle of incident of radiation of the surface

Question Number : 75 Question Id : 61097513503 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

In an optical fibre, relation between refractive index of core (n_1) and refractive index of cladding (n_2) is

Options :

1. $n_1 > n_2$

2. $n_1 < n_2$

3. $n_1 = n_2$

4. $n_1 << n_2$

Chemistry

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Section Number :	3
Mandatory or Optional :	Mandatory
Number of Questions :	25
Number of Questions to be attempted :	25
Section Marks :	25
Display Number Panel :	Yes
Group All Questions :	Yes
Mark As Answered Required? :	Yes

Question Number : 76 Question Id : 61097513504 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The nucleus consists of

Options :

1. Proton and electron

2. Proton and Neutron

3. Proton and Duterium

4. Proton and photan

Question Number : 77 Question Id : 61097513505 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The shape of P-Orbital is

Options :

1. Spherical

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2. Dumbbell

3. Double Dumbbell

4. Oval

Question Number : 78 Question Id : 61097513506 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The maximum number of electrons that a f-orbital can accommodate is

Options :

1. 2

2. 6

3. 10

4. 14

Question Number : 79 Question Id : 61097513507 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

In NaCl formation Sodium is donating ----- electrons

Options :

1. 0

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2. 2

3. 1

4. 3

Question Number : 80 Question Id : 61097513508 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

O_2 molecule contains

Options :

1. Covalent bond

2. Ionic bond

3. Hydrogen bond

4. Metalic bond

Question Number : 81 Question Id : 61097513509 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Avagadro Number is

Options :

1. $6.023X\ 10^{-23}$

2. $6.023X\ 10^{23}$

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3. $60.23X\ 10^{23}$

4. $6.023X\ 10^{25}$

Question Number : 82 Question Id : 61097513510 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The normality of the solution obtained by dissolving 8 gm of NaOH in 1 Litre is

Options :

1. 2N

2. 0.2N

3. 0.25N

4. 0.02N

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Question Number : 83 Question Id : 61097513511 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Molecular weight of $MgSO_4$ is

Options :

1. 120

2. 121

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3. 119

4. 122

Question Number : 84 Question Id : 61097513512 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A Lewis base is a substance which

Options :

1. Accept protons

2. Accept a lone pair of electrons

3. Donate protons

4. Donate a lone pair of electrons

Question Number : 85 Question Id : 61097513513 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

P^H of a solution is 4.5. the solution is

Options :

1. Basic

2. Acidic

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3. Neutral

4. Amphoteric

Question Number : 86 Question Id : 61097513514 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

One Faraday is equal to

Options :

1. 96485 C

2. 98485 C

3. 96465 C

4. 96585 C

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Question Number : 87 Question Id : 61097513515 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Common electrolyte used in the salt bridge is

Options :

1. NaOH

2. NaCl

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3. KCl

4. KOH

Question Number : 88 Question Id : 61097513516 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

SI Units of Electrical conductivity are

Options :

1. Seimens per meter

2. Seimens per centimeter

3. Seimens per millimeter

4. Seimens per kilometer

Question Number : 89 Question Id : 61097513517 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Calculate the standard e.m.f of the Zn-Cu cell. if the cell is represented as Zn. Zn^{+2}: Cu^{+}. Cu (E^0Zn^{+2} Zn) =0.86 and (E^0Cu^{+2} Cu) = 0.34.

Options :

1. 1.20V

2. 0.52V

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3. -1.20V

4. -0.11V

Question Number : 90 Question Id : 61097513518 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Permanent Hardness is caused due to

Options :

1. Carbonates and Bicarbonates

2. Carbonates and Sulphates

3. Chlorides and Sulphates

4. Chlorides and Carbonates

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Question Number : 91 Question Id : 61097513519 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Permutit is chemically

Options :

1. Sodium Silicate

2. Aluminium Silicate

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3. Hydrated Sodium alumino silicate

4. Calcium silicate

Question Number : 92 Question Id : 61097513520 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The anion exchange resin possesses

Options :

1. Acidic group

2. Basic group

3. Amphoteric group

4. Benzo group

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Question Number : 93 Question Id : 61097513521 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Chemically the rust is

Options :

1. Fe_2O_3

2. $Fe_2O_3.FeO$

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3. $Fe_2O_3.XH_2O$

4. $Fe_2O_3 . NH_3$

Question Number : 94 Question Id : 61097513522 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The gradual loss of a metal by chemical or electrochemical action of environment is called

Options :

1. Corrosion

2. Caustic embrittlement

3. Priming

4. foaming

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Question Number : 95 Question Id : 61097513523 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following is a thermosetting plastic ?

Options :

1. Bakelite

2. Polystyrene

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3. Polythene

4. Nylon

Question Number : 96 Question Id : 61097513524 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Tetra Fluoro Ethane is a monomer of

Options :

1. Teflon

2. Nylon

3. Styrene

4. Rubber

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Question Number : 97 Question Id : 61097513525 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Buna-N is a copolymer of

Options :

1. Butadiene and Styrene

2. Butadiene and Acrylonitrile

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3. Butadiene and Isoprene

4. Formaldehyde and Styrene

Question Number : 98 Question Id : 61097513526 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Main constituent of Producer gas is

Options :

1. $CO+N_2$

2. $CO+H_2$

3. $CO+CO_2$

4. CO_2+H_2

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Question Number : 99 Question Id : 61097513527 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Ozone layer is present at

Options :

1. Staratosphere

2. Inosphere

3.

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Thermosphere

4. Atmosphere

Question Number : 100 Question Id : 61097513528 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Acid Rain is caused due to

Options :

1. Chloro Fluoro Carbons

2. Methane

3. Oxides of Sulphur and Nitrogen

4. Carbon monaxide

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Civil Engineering

Section Number :	4
Mandatory or Optional :	Mandatory
Number of Questions :	100
Number of Questions to be attempted :	100
Section Marks :	100
Display Number Panel :	Yes
Group All Questions :	Yes

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Mark As Answered Required? : Yes

Question Number : 101 Question Id : 61097513529 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Strain hardening of a material occurs when

Options :

1. ductility increases under repeated loading

2. hardness increases under repeated loading

3. hardness increases with the increase of strain

4. stress increases with the strain beyond yield stress

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Question Number : 102 Question Id : 61097513530 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A steel bar of 50 mm × 50 mm square cross section and length 2.5 m is subjected to an axial tensile force of 250 kN. If the modulus of elasticity of the material is 200 GPa, the elongation of the bar will be

Options :

1. 1 mm

2. 1.25 mm

3. 1.5 mm

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4. 2.50 mm

Question Number : 103 Question Id : 61097513531 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If the Bulk modulus of elasticity of a material is twice its Modulus of rigidity. then the

Poisson's ratio of the material is

Options :

1. $\frac{1}{7}$

2. $\frac{2}{7}$

3. $\frac{3}{7}$

4. $\frac{4}{7}$

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Question Number : 104 Question Id : 61097513532 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A bar of square cross section 40 mm × 40 mm and length 250 mm is subjected to an axial

pull of 120 kN in the longitudinal direction. The decrease in each lateral dimension is

0.005 mm. The lateral strain is

Options :

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1. 1.25×10^{-4}

2. 2.50×10^{-4}

3. 4.0×10^{-4}

4. 5.0×10^{-4}

Question Number : 105 Question Id : 61097513533 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A bar of weight W having cross sectional area A. Length L. and modulus of elasticity E is hung at one end and subjected to a tensile load W at the other end. The elongation of the bar is

Options :

1. $\frac{WL}{2AE}$

2. $\frac{WL}{AE}$

3. $\frac{3WL}{2AE}$

4. $\frac{2WL}{AE}$

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Question Number : 106 Question Id : 61097513534 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The bending moment in a beam does not depends on

Options :

1. Type of beam

2. Span of beam

3. Position of load

4. Cross section of beam

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Question Number : 107 Question Id : 61097513535 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A simply supported beam of span 8 m is subjected to a uniformly distributed load of 24 kN/m over the whole span and a concentrated load of 48 kN acting at midspan. The maximum bending moment is

Options :

1. 96 kNm

2. 192 kNm

3. 288 kNm

4. 384 kNm

Question Number : 108 Question Id : 61097513536 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

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A cantilever beam AB of span L is fixed at A and free at B is subjected to a total uniformly distributed load of W over the whole span and a concentrated load of W at the free end. The maximum bending moment induced in the beam is

Options :

1. $2WL$

2. $1.5WL$

3. WL

4. $0.5WL$

Question Number : 109 Question Id : 61097513537 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If a beam is subjected to a uniformly distributed load, then the bending moment diagram shows

Options :

1. Rectangle or constant value

2. Linear variation

3. Trapezoidal variation

4. Parabolic variation

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Question Number : 110 Question Id : 61097513538 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A simply supported beam of span L is subjected to a uniformly distributed load of

w in throughout the span. The shear force diagram consists of

Options :

1. one right angled triangle

2. two right angled triangles

3. two equilateral triangles

4. two rectangles

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Question Number : 111 Question Id : 61097513539 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

When a beam is subjected to transverse loading, zero bending stress at a given cross section occurs at

Options :

1. Top fibre

2. Bottom fibre

3. Centroid of the section

4. any point depending on the shape of beam.

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Question Number : 112 Question Id : 61097513540 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The section modulus for a beam of unsymmetrical section is the ratio of its

Options :

1. Moment of Inertia and Bending moment

2. Moment of Inertia and half of the depth of beam

3. Moment of Inertia and Least radius of gyration

4. Moment of Inertia and extreme fibre distance from the neutral axis.

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Question Number : 113 Question Id : 61097513541 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A steel plate 100 mm wide and 20 mm thick is to be bent into a circular arc of radius 10

m. If the modulus of elasticity of the plate is 200 GPa. then the maximum bending stress induced will be

Options :

1. $100\ N\ mm^2$

2. $200\ N\ mm^2$

3. $1000\ N\ mm^2$

4. $2000\ N\ mm^2$

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Question Number : 114 Question Id : 61097513542 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A rectangular cantilever beam of cross section is 0.5 m wide and 1 m deep. If the beam cross section changed to 1 m wide and 0.5 m deep. then the beam would

Options :

1. have the same strength

2. be weakened by 0.25 times

3. be weakened by 0.5 times

4. be strengthened by 0.5 times

Question Number : 115 Question Id : 61097513543 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A steel beam of rectangular section of width 50 mm and depth 100 mm induces the maximum shear stress of 15 N/mm^2. The shear force acting at the beam cross section is

Options :

1. 5 kN

2. 33.3 kN

3.

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50 kN

4. 75 kN

Question Number : 116 Question Id : 61097513544 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A symmetrical I section has 120 mm wide and 10 mm thick flanges, 20 mm thick and 380 mm depth of web. Under a given shear force, the increase in shear stress at the junction of flange and web would be _____ times of shear stress at the bottom of flange.

Options :

1. 6 times

2. 12 times

3. 60 times

4. 120 times

Question Number : 117 Question Id : 61097513545 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

When a beam of circular cross section subjected to transverse loading, the maximum shear stress developed in the beam is greater than the average shear stress by

Options :

1. 25%

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2. 33%

3. 50%

4. 133%

Question Number : 118 Question Id : 61097513546 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The maximum shear stress induced in a solid circular shaft of diameter d subjected to a torque T . is

Options :

1. proportional to d^2

2. inversely proportional to d^2

3. proportional to d^3

4. inversely proportional to d^3

Question Number : 119 Question Id : 61097513547 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

When a circular shaft is subjected to pure torsion, the element on the surface of cross section is subjected to

Options :

1. Normal stress

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2. pure shear stress

3. Bending stress

4. Bending stress and shear stress

Question Number : 120 Question Id : 61097513548 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Torsional rigidity is defined as

Options :

1. Product of modulus of elasticity and moment of inertia

2. Product of modulus of rigidity and moment of inertia

3. product of modulus of elasticity and polar moment of inertia

4. the torque induced due to unit twist per unit length.

Question Number : 121 Question Id : 61097513549 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A cantilever beam of span $2L$ and flexural rigidity EI is subjected to a concentrated load of W at the free end. The deflection at the free end is

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Options :

1. $\frac{WL^3}{3EI}$

2. $\frac{2}{3}.\frac{WL^3}{EI}$

3. $\frac{4}{3}.\frac{WL^3}{EI}$

4. $\frac{8}{3}.\frac{WL^3}{EI}$

Question Number : 122 Question Id : 61097513550 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A simply supported beam AB of span 6 m is subjected to a concentrated load of 80 kN at mid-span. If the flexural rigidity of the beam is 20.000 kNm^2, the deflection under the concentrated load is

Options :

1. 9 mm

2. 18 mm

3. 24 mm

4. 36 mm

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Question Number : 123 Question Id : 61097513551 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A simply supported beam of span $2L$ and flexural rigidity EI is subjected to a uniformly distributed load of w m over the whole span. The deflection at mid-span is

Options :

1. $\frac{5}{384}.\frac{wL^4}{EI}$

2. $\frac{5}{48}.\frac{wL^4}{EI}$

3. $\frac{5}{24}.\frac{wL^4}{EI}$

4. $\frac{wL^4}{48EI}$

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Question Number : 124 Question Id : 61097513552 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Mohr's theorems are used for directly computing

Options :

1. slope and deflection

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2. slope and shear force

3. deflection and bending moment

4. shear force and bending moment

Question Number : 125 Question Id : 61097513553 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A propped cantilever AB of span L is fixed at A and supported by a prop at B. It is subjected to a uniformly distributed load of w m over the entire span. The ratio of the reaction of the prop at B to that of fixed end A is

Options :

1. $\frac{3}{8}$

2. $\frac{5}{8}$

3. $\frac{3}{5}$

4. $\frac{5}{3}$

Question Number : 126 Question Id : 61097513554 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

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A propped cantilever AB of span L is fixed at A and supported by a prop at B. It is subjected to a concentrated load of W at mid-span. The bending moment at support A is

Options :

1. WL 4(Sagging)

2. WL 4 (Hogging)

3. WL 8 (Hogging)

4. 3WL 8 (Sagging)

Question Number : 127 Question Id : 61097513555 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A fixed beam AB of span L subjected to a uniformly distributed load of w m over the whole span. The bending moment of mid-span of beam is

Options :

1. wL^2 8 (Sagging)

2. wL^2 8 (Hogging)

3. wL^2 24 (Hogging)

4. wL^2 24 (Sagging)

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Question Number : 128 Question Id : 61097513556 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A fixed beam of span L and flexural rigidity EI is subjected to a concentrated load of $2W$ at the mid-span. The deflection under the concentrated load is

Options :

1. $\frac{1}{384}.\frac{WL^3}{EI}$

2. $\frac{1}{48}.\frac{WL^3}{EI}$

3. $\frac{1}{96}.\frac{WL^3}{EI}$

4. $\frac{1}{192}.\frac{WL^3}{EI}$

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Question Number : 129 Question Id : 61097513557 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

For a simply supported beam subjected to transverse loading. the maximum defection occurs at the point where

Options :

1. slope is equal to zero

2. bending moment is equal to zero

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3. bending moment is maximum

4. shear force is equal to zero

Question Number : 130 Question Id : 61097513558 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Assume that the joint of a pin jointed plane truss consists of only three members and no loads. If the two members out of three are collinear. then the force in the third member is

Options :

1. zero

2. maximum

3. sum of the forces in other two members

4. difference of the forces in other two members.

Question Number : 131 Question Id : 61097513559 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If m, r and j are the number of members. number of reaction components and number of joints in a plane truss respectively. Which of the following condition is true for stable determinate plane truss?

Options :

1. $m + r = 3j$

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2. $m + r = 2j$

3. $m + j = 2r$

4. $m + j = 3r$

Question Number : 132 Question Id : 61097513560 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Failure due to Buckling of compression members always occur about an axis having

Options :

1. Maximum Moment of Inertia

2. Maximum Radius of Gyration

3. Maximum Slenderness ratio

4. Least Radius of Gyration

Question Number : 133 Question Id : 61097513561 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The ratio of Euler's buckling load for a column with both ends fixed to that of with both ends hinged with same length is

Options :

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1. 1

2. $\sqrt{2}$

3. 2

4. 4

Question Number : 134 Question Id : 61097513562 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The equivalent length of column of length L with one end fixed and the other end free is

Options :

1. $0.5\,L$

2. $0.707\,L$

3. $1.414\,L$

4. $2\,L$

Question Number : 135 Question Id : 61097513563 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

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The Euler buckling load for a long column of diameter D is P .If the diameter of the section is increased to $2D$. the buckling load carrying capacity of the column is

Options :

1. $16P$

2. $8P$

3. $\frac{P}{8}$

4. $\frac{P}{16}$

Question Number : 136 Question Id : 61097513564 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If the Euler load for a steel column is 600 kN and crushing load is 1200 kN. the Rankine's load is equal to

Options :

1. 1800 kN

2. 1200 kN

3. 600 kN

4. 400 kN

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Question Number : 137 Question Id : 61097513565 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The toe and heel in a dam respectively are located at

Options :

1. upstream top and upstream bottom

2. downstream bottom and upstream top

3. downstream bottom and upstream bottom

4. upstream bottom and downstream bottom

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Question Number : 138 Question Id : 61097513566 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A retaining wall of height 5 m retains horizontal backfill with soil upto the top. The unit weight and angle of repose of soil are 18 kN m^3 and 30° respectively. The total active earth thrust on the wall is

Options :

1. 150 kN

2. 75 kN

3. 30 kN

4.

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25 kN

Question Number : 139 Question Id : 61097513567 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

For no tension to occur at the base of the gravity dam. the resultant of all forces should always lie

Options :

1. at the centre of the base

2. between the centre of base and toe

3. between the centre of base and heel

4. within the middle third portion of the base

Question Number : 140 Question Id : 61097513568 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A triangular masonry dam is constructed with the material of specific gravity ρ . the ratio between the height and base width of the dam for structural safety is equal to

Options :

1. $\sqrt{2\rho}$

2. $\sqrt{\rho}$

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3. $\frac{1}{\rho}$

4. $\frac{1}{\sqrt{\rho}}$

Question Number : 141 Question Id : 61097513569 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The maximum probability of characteristic load exceeding on a structure is

Options :

1. 5%

2. 95%

3. 10%

4. 90%

Question Number : 142 Question Id : 61097513570 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If the characteristic compressive strength of concrete at 28 days is 25 N mm^2 and the standard deviation is 4.0 N mm^2. the target strength at 28 days for concrete mix is

Options :

1. 25.0 MPa

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2. 29.0 MPa

3. 31.6 MPa

4. 33.0 MPa

Question Number : 143 Question Id : 61097513571 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The clear cover for 32 mm diameter longitudinal reinforcement and 8 mm diameter stirrups in a beam shall not be less than

Options :

1. 25 mm

2. 32 mm

3. 35 mm

4. 40 mm

Question Number : 144 Question Id : 61097513572 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A reinforced concrete beam of effective span 6 m is having width of 250 mm and effective depth of 400 mm. If Fe 500 grade of steel used, the minimum area of tensile steel reinforcement is

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Options :

1. $120\ mm^2$

2. $150\ mm^2$

3. $170\ mm^2$

4. $180\ mm^2$

Question Number : 145 Question Id : 61097513573 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

For monolithic construction of beam and slab in a framed structure, the beam acts as T beam at

Options :

1. mid span section

2. At support section

3. Any longitudinal section

4. any section along the length

Question Number : 146 Question Id : 61097513574 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

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The monolithic reinforced concrete roof consists of T beams at a spacing of 3.5 m over the span 6 m with 100 mm thick flange and 300 mm wide web. The effective width of flange as per IS code is

Options :

1. 1400 mm

2. 1600 mm

3. 1900 mm

4. 2900 mm

Question Number : 147 Question Id : 61097513575 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

As per IS:456-2000 the contribution of bent up bars towards shear resistance shall not be more than

Options :

1. 40% of total tension reinforcement

2. 50% of total tension reinforcement

3. 40% of total shear reinforcement

4. 50% of total shear reinforcement

Question Number : 148 Question Id : 61097513576 Question Type : MCQ Display Question

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Number : Yes Is Question Mandatory : No Single Line Question Option : No Option

Orientation : Vertical

For a reinforced concrete beam of effective depth d, the maximum spacing of vertical stirrups measured along the axis shall not exceed.

Options :

1. $0.12\,d$

2. $0.15\,d$

3. $0.60\,d$

4. $0.75\,d$

Question Number : 149 Question Id : 61097513577 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option

Orientation : Vertical

The maximum spacing of 10 mm diameter bars in a reinforced concrete slab of 120 mm effective depth is

Options :

1. 120 mm

2. 240 mm

3. 300 mm

4. 360 mm

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Question Number : 150 Question Id : 61097513578 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The ratio of thickness of slab to that of maximum diameter of steel reinforcement

shall not be less than

Options :

1. 8

2. 12

3. 16

4. 24

Question Number : 151 Question Id : 61097513579 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A square column of size 400 mm × 400 mm is reinforced with 4 bars of 25 mm diameter and 4 bars of 16 mm diameter bars. The transverse reinforcement shall be

Options :

1. 6 mm ϕ bars at 250 mm

2. 6 mm ϕ bars at 300 mm

3. 8 mm ϕ bars at 250 mm

4.

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8 mm ϕ bars at 300 mm

Question Number : 152 Question Id : 61097513580 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

In limit state method of design, the maximum compressive strain in axial compression as per IS:456 is taken as

Options :

1. 0.02

2. 0.002

3. 0.035

4. 0.0035

Question Number : 153 Question Id : 61097513581 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The minimum diameter of longitudinal bar in a RCC column shall not be less than

Options :

1. 10 mm

2. 12 mm

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3. 16 mm

4. 20 mm

Question Number : 154 Question Id : 61097513582 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

As per IS:456-2000 , the minimum clear cover for footings is

Options :

1. 25 mm

2. 40 mm

3. 50 mm

4. 60 mm

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Question Number : 155 Question Id : 61097513583 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

For reinforced concrete isolated footing of effective depth d , the critical section for bending moment is at

Options :

1. the face of column

2. a distance of d from the face of column

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3. a distance of $d/2$ from the face of column

4. a distance of $2d$ from the face of column.

Question Number : 156 Question Id : 61097513584 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The shape of stress block in working stress method of design is assumed to be

Options :

1. rectangle

2. triangle

3. parabolic

4. parabolic and rectangle

Question Number : 157 Question Id : 61097513585 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

When the total width of space available for staircase equal to twice the width of steps. the type of staircase preferable is

Options :

1. Spiral

2. Open Newel

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3. Dog-legged

4. Geometrical

Question Number : 158 Question Id : 61097513586 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

In a reinforced concrete beam, if the stress in steel reinforcement attains its yield stress before the concrete fails due to crushing, the beam is said to be

Options :

1. balanced

2. under reinforced

3. over reinforced

4. non-homogeneous

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Question Number : 159 Question Id : 61097513587 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

In the analysis of RC beams using working stress method, the modular ratio for M

20 grade of concrete is

Options :

1. 18.6

2. 13.3

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3. 9.9

4. 6.5

Question Number : 160 Question Id : 61097513588 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

For design of RC members using working stress method. the factor of safety considered for concrete and steel respectively are

Options :

1. 1.5 and 1.15

2. 3.0 and 1.5

3. 3.0 and 1.8

4. 1.5 and 1.8

Question Number : 161 Question Id : 61097513589 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following is an obstacle to chaining but not to ranging?

Options :

1. River

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2. Hill

3. Building

4. Dense Forest

Question Number : 162 Question Id : 61097513590 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The length of a line measured with 20 m chain was found to be 400 m. It was observed that the chain is 10 cm too long. The true length of line is

Options :

1. 398 m

2. 399 m

3. 400 m

4. 402 m

Question Number : 163 Question Id : 61097513591 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If the reduced bearing and departure of a line are N 30°E and 100 m respectively, then the length of the line is

Options :

1. 50 m

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2. 100 m

3. 200 m

4. 300 m

Question Number : 164 Question Id : 61097513592 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If the bearings of lines PQ and PR are 24°20` and 320°30` respectively, then the included angle QPR is

Options :

1. 344°50`

2. 296°10`

3. 140°30`

4. 63°50`

Question Number : 165 Question Id : 61097513593 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The line joining the points of equal dip are known as

Options :

1. Agonic lines

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2. Isogonics lines

3. Aclinic lines

4. isoclinic lines

Question Number : 166 Question Id : 61097513594 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

In a closed traverse survey. the closing error in plotting is due to error in

Options :

1. adjustment of the instrument

2. linear measurements only

3. Angular measurements only

4. Both linear and angular measurements

Question Number : 167 Question Id : 61097513595 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Reduced level of a point is the elevation with reference to

Options :

1. Ground surface

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2. Level surface

3. Datum surface

4. Flat Surface

Question Number : 168 Question Id : 61097513596 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The observations from reciprocal leveling are as given in table below.

Instrument at	Staff reading at	
	Station A	Station B
A	1.425	1.575
B	0.700	1.050

It is concluded that

Options :

1. station A is lower than B

2. Station A is higher than B

3. Stations A and B are at the same level

4. Insufficient data to know the levels of A and B.

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Question Number : 169 Question Id : 61097513597 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The process of forming clear image of the object in the plane of cross hairs is known as

Options :

1. Focusing

2. Ranging

3. Transferring

4. Elimination of parallax

Question Number : 170 Question Id : 61097513598 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

For a tachometer. the fixed interval between stadia hairs is 4 mm. the focal length of the objective is 24 mm and the distance of vertical axis of the instrument from the optical centre of the objective is 15 cm. The multiplying constant of the tachometer is

Options :

1. 100

2. 60

3. 50

4. 39

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Question Number : 171 Question Id : 61097513599 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Using the tachometer fitted with anallactic lens. if the intercept on a vertical staff is observed as 0.65. then the distance between the tachometer and staff station is

Options :

1. 6.5 m

2. 13.0 m

3. 32.5 m

4. 65 m

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Question Number : 172 Question Id : 61097513600 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The minimum number of GPS stations required for getting a position are

Options :

1. 3

2. 4

3. 5

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4. 7

Question Number : 173 Question Id : 61097513601 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The line in polygon method in GIS is characteristic of

Options :

1. vector overlay

2. Raster overlay

3. Buffer operation

4. Intersecting operation

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Question Number : 174 Question Id : 61097513602 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

In a contour map. the vertical distance between any two consecutive contours is known as

Options :

1. contour distance

2. contour scale

3. contour interval

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4. contour equivalent.

Question Number : 175 Question Id : 61097513603 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The Reduced Level of floor at a building is 100.0 m. staff reading on the floor is 1.525 and staff reading when it is held inverted with bottom touching the ceiling of a hall is 2.650. then the height of the ceiling above the floor is

Options :

1. 2.088 m

2. 2.850 m

3. 4.175 m

4. 5.700 m

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Question Number : 176 Question Id : 61097513604 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The dynamic viscosity (μ). kinematic viscosity (ν) and mass density (ρ) are related as

Options :

1. $\mu = 1.5\nu.\rho$

2. $\rho = \mu.\nu$

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3. $\nu = \mu.\rho$

4. $\mu = \nu.\rho$

Question Number : 177 Question Id : 61097513605 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If a piece of material weighing 2 kg in air was found to be 1.5 kg when submerged in water, then the specific gravity of the material is

Options :

1. 3

2. 4

3. 5

4. 7

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Question Number : 178 Question Id : 61097513606 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The pressure at a depth of 1m below the free surface of a body of water is equal to

Options :

1. 1 Pa

2. 98.1 Pa

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3. 981 Pa

4. 9810 Pa

Question Number : 179 Question Id : 61097513607 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Piezometer is used for measuring

Options :

1. Absolute pressure

2. Gauge pressure

3. Vaccum pressure

4. Atmospheric pressure

Question Number : 180 Question Id : 61097513608 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The continuity equation in fluid mechanics is based on the principle of

Options :

1. Conservation of mass

2. Conservation of energy

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3. Conservation of momentum

4. Conservation of velocity

Question Number : 181 Question Id : 61097513609 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The length of convergent cone of a venturimeter

Options :

1. is equal to the length of divergent cone

2. is more than the length of divergent cone

3. is less than the length of divergent cone

4. has no relation with the length of divergent cone

Question Number : 182 Question Id : 61097513610 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

An orifice of 20 mm diameter discharging from a pipe has 16 mm diameter at the minimum section of flow. The coefficient of contraction is

Options :

1. 0.62

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2. 0.64

3. 0.80

4. 0.98

Question Number : 183 Question Id : 61097513611 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If H is the head over the triangular notch. then the discharge is proportional to

Options :

1. $H^{0.5}$

2. $H^{1.5}$

3. $H^{2.5}$

4. $H^{5.0}$

Question Number : 184 Question Id : 61097513612 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

In a steady flow through pipe at a particular section. the pressure head. potential head and velocity head are 1.5m. 2.5m and 3.5m respectively. The height of hydraulic gradient line at the section is

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Options :

1. 1.5m

2. 4.0m

3. 5.0m

4. 7.5m

Question Number : 185 Question Id : 61097513613 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

When the series of pipes with different diameters attached end to end. then

Options :

1. frictional losses are reduced.

2. head loss is same in all pipes

3. discharge is same in all the pipes

4. velocity of flow is same in all pipes

Question Number : 186 Question Id : 61097513614 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Reynolds number is the ratio of

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Options :

1. gravity force to inertia force

2. inertia force to gravity force

3. viscous force to inertia force

4. inertia force to viscous force

Question Number : 187 Question Id : 61097513615 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A turbine is a device which converts

Options :

1. Hydraulic energy into Mechanical energy

2. Hydraulic energy into Electrical energy

3. Mechanical energy into Electrical energy

4. Mechanical energy into Hydraulic energy

Question Number : 188 Question Id : 61097513616 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Centrifugal pumps are adopted for

Options :

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1. low head and large discharge

2. low head and low discharge

3. large head and low discharge

4. large head and large discharge

Question Number : 189 Question Id : 61097513617 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The discharge through a trapezoidal channel is maximum when

Options :

1. top width is equal to sloping side

2. top width is equal to 1.5 times sloping side

3. half the top width is equal to sloping side

4. half the top width is equal to 1.5 times sloping side

Question Number : 190 Question Id : 61097513618 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The discharge through a rectangular channel section will be maximum when

Options :

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1. depth is equal to the width

2. depth is equal to twice the width

3. width is equal to twice the depth

4. width is equal to 1.5 times the depth

Question Number : 191 Question Id : 61097513619 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A graph drawn with intensity of rainfall and time is known as

Options :

1. Hyetograph

2. Hydrograph

3. Mass curve

4. Inflow curve

Question Number : 192 Question Id : 61097513620 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

An accurate method for computing the average rainfall in a catchment area is

Options :

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1. Isohyetal method

2. Arithmetic average method

3. Theissen polygon method

4. Normal ratio method

Question Number : 193 Question Id : 61097513621 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The mean velocity at any vertical section of a stream is

Options :

1. equal to the surface velocity

2. less than the surface velocity.

3. more than the surface velocity

4. twice the surface velocity

Question Number : 194 Question Id : 61097513622 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The maximum flood discharge (Q) of a river basin area (A) using Dicken's formula

is of the form $Q = C.A^n$, where C is a constant. The value of n is

Options :

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1. 0.50

2. 0.66

3. 0.75

4. 0.85

Question Number : 195 Question Id : 61097513623 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If the delta for a crop having base period of 120 days is 86.4 cm. then the duty of

crop in hectares cumec is

Options :

1. 12000

2. 1200

3. 120

4. 12

Question Number : 196 Question Id : 61097513624 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The ideal irrigation method for growing paddy is

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Options :

1. contour irrigation

2. furrow method

3. check basin irrigation

4. border strip irrigation

Question Number : 197 Question Id : 61097513625 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A coffer dam is a

Options :

1. type of gravity dam

2. small height of earth dam to protect important areas

3. structure like embankment built along a river to regulate the water

4. a temporary structure constructed to reduce water from the work area during construction

Question Number : 198 Question Id : 61097513626 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A rock toe filter in an earthen dam is provided at

Options :

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1. upstream end of the bund

2. downstream end of the bund

3. the base of the bund

4. the centre of base along the bund

Question Number : 199 Question Id : 61097513627 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The most suitable location for canal headwork is

Options :

1. Free flow of river

2. Rocky stage of river

3. Trough stage of river

4. Silting stage of river

Question Number : 200 Question Id : 61097513628 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If a drain is over the canal. the structure to be provided is

Options :

1. Aqueduct

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2. canal siphon

3. super passage

4. siphon aqueduct

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