Andhra Pradesh State Council of Higher Education

Notations :

1.Options shown in green color and with ✔ icon are correct.

2.Options shown in red color and with ✖ icon are incorrect.

Question Paper Name :	Civil Engineering 06th May 2025 Shift 1
Subject Name :	Civil Engineering
Creation Date :	2025-05-06 14:10:35
Duration :	180
Total Marks :	200
Display Marks:	No
Share Answer Key With Delivery Engine :	Yes
Change Font Color :	No
Change Background Color :	No
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Help Button :	No
Show Reports :	No
Show Progress Bar :	No

Civil Engineering

Group Number :	1
Group Id :	89040172
Group Maximum Duration :	0
Group Minimum Duration :	180
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	200

Mathematics

Section Id :	890401279
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory

Number of Questions :	50
Number of Questions to be attempted :	50
Section Marks :	50
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	890401303
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 89040114213 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the matrix $A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix}$, then which of the following is true?

Options :

1. ✖ *The matrix is invertible*

2. ✔ *The matrix is singular*

3. ✖ The matrix is diagonalizable

4. ✖ The matrix is symmetric.

Question Number : 2 Question Id : 89040114214 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $A = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$, and the determinant of A is 5, then determinant of the matrix 2A is

Options :

1. ✖ 10

2. ✔ 20

3. ✖ 5

4. ✖ 25

Question Number : 3 Question Id : 89040114215 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

If the matrix A is of order 3x3 and the system of equations AX = B has a unique solution,

what can be concluded about the determinant of A?

Options :

1. ✖ The determinant of A is zero

2. ✔ The determinant of A is non-zero

3. ✖ The determinant of A must be 1 only

4. ✖ The determinant of A cannot be negative

Question Number : 4 Question Id : 89040114216 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

If $A = \begin{bmatrix} x & 3 \\ 2 & 4 \end{bmatrix}$ and $A^{-1} = \begin{bmatrix} -2 & 1.5 \\ 1 & -0.5 \end{bmatrix}$ then the value of x is

Options :

1. ✖ -2

2. ✔ 1

3. ✖ 1.5

4. ✖ -0.5

Question Number : 5 Question Id : 89040114217 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 0 \\ 1 & 0 \end{bmatrix}$, then $(AB)^T =$

Options :

1. ✗ $\begin{bmatrix} 0 & 0 \\ 3 & 4 \end{bmatrix}$

2. ✗ $\begin{bmatrix} 0 & 0 \\ 3 & 7 \end{bmatrix}$

3. ✓ $\begin{bmatrix} 3 & 7 \\ 0 & 0 \end{bmatrix}$

4. ✗ $\begin{bmatrix} 3 & 6 \\ 0 & 0 \end{bmatrix}$

Question Number : 6 Question Id : 89040114218 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\frac{2x+5}{(x-1)(x+3)} = \frac{A}{(x-1)} + \frac{B}{(x+3)}$ then A+B =

Options :

1. ✗ -2

2. ✓ 2

3. ✗ 1

4. ✗ -1

Question Number : 7 Question Id : 89040114219 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\frac{3x-1}{(x-1)(x-2)(x-3)} = \frac{A}{(x-1)} + \frac{B}{(x-2)} + \frac{C}{(x-3)}$ then the values of (A, B, C) are

Options :

1. ✔ $(1, -5, 4)$

2. ✖ $(1, 5, 4)$

3. ✖ $(4, 5, 1)$

4. ✖ $(1, 4, 5)$

Question Number : 8 Question Id : 89040114220 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\sin\theta = \frac{3}{5}$, *then* $\cos\theta =$

Options :

1. ✖ $\frac{4}{5}$ *but not* $-\frac{4}{5}$

2. ✔ $-\frac{4}{5}$ *or* $\frac{4}{5}$

3. ✖ $-\frac{4}{5}$ *but not* $\frac{4}{5}$

4. ✖ $\frac{3}{5}$ *but not* $-\frac{3}{5}$

Question Number : 9 Question Id : 89040114221 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\cos\theta \operatorname{cosec}\theta = -1$ *and* θ *lies in the second quadrant then* $\cos\theta =$

Options :

1. ✖

$\frac{-\sqrt{3}}{2}$

2. ✖ $\frac{\sqrt{2}}{2}$

3. ✔ $-\frac{\sqrt{2}}{2}$

4. ✖ $-\sqrt{2}$

Question Number : 10 Question Id : 89040114222 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $5\sin\theta = 4$ *then the value of* $\frac{Cosec\,\theta - \cot\theta}{Cosec\,\theta + \cot\theta}$ *is*

Options :

1. ✖ -1/4

2. ✖ -1/2

3. ✖ 1/2

4. ✔ 1/4

Question Number : 11 Question Id : 89040114223 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

For real x and if $x + \frac{1}{x} = 2\cos\theta$ *then* $\cos\theta$ *is*

Options :

1. ✔ ± 1

2. ✖ 1/2

3. ✖ 1

4. ✖ $\pm\frac{1}{2}$

Question Number : 12 Question Id : 89040114224 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$sin^6\theta + cos^6\theta + 3sin^2\theta\, cos^2\theta =$

Options :

1. ✖ 0

2. ✔ 1

3. ✖ 2

4. ✖ -1

Question Number : 13 Question Id : 89040114225 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The maximum value of $3\cos\theta + 4\sin\theta$ *is*

Options :

1. ✖ 2

2. ✖ 4

3. ✔ 5

4. ✖ 1

Question Number : 14 Question Id : 89040114226 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\sin 5x + \sin 3x + \sin x = 0$ then the value of x other than zero lying between $0 \le x \le \frac{\pi}{2}$ is

Options :

1. ✖ $\frac{\pi}{6}$

2. ✔ $\frac{\pi}{3}$

3. ✖ $\frac{\pi}{12}$

4. ✖ $\frac{\pi}{4}$

Question Number : 15 Question Id : 89040114227 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The general solution of the equation $tan^2 x = 1$ *is*

Options :

1. ✖ $n\pi + \frac{\pi}{4}$ only

2. ✔ $n\pi \pm \frac{\pi}{4}$

3. ✖ $2n\pi \pm \frac{\pi}{4}$

4. ✖ $n\pi - \frac{\pi}{4}$ only

Question Number : 16 Question Id : 89040114228 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The value of $\cos\frac{5\pi}{17}+\cos\frac{7\pi}{17}+2\cos\frac{11\pi}{17}\cos\frac{\pi}{17}$ is

Options :

1. ✔ 0

2. ✖ 1

3. ✖ -1

4. ✖ $1/2$

Question Number : 17 Question Id : 89040114229 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\sin\theta-\cos\theta=4/5$ then the value of $\sin\theta+\cos\theta=$

Options :

1. ✖ $\frac{5}{\sqrt{34}}$

2. ✖ $-\frac{5}{\sqrt{34}}$

3. ✖ $-\frac{\sqrt{34}}{25}$

4. ✔ $\frac{\sqrt{34}}{5}$

Question Number : 18 Question Id : 89040114230 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The real part of $\frac{1+2i}{(2-i)^2}$ is

Options :

1. ✔ $-\frac{1}{5}$

2. ✖ $\frac{1}{5}$

3. ✖ $-\frac{2}{5}$

4. ✖ $\frac{2}{5}$

Question Number : 19 Question Id : 89040114231 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Modulus of the complex number $\frac{(1+i)^{10}}{(2i-4)^4}$ is equal to

Options :

1. ✔ $\frac{2}{25}$

2. ✖ $-\frac{2}{25}$

3. ✖ $\frac{1}{25}$

4. ✖ $-\frac{1}{25}$

Question Number : 20 Question Id : 89040114232 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a circle with center O, a 6cm long chord is at a distance 4 cm from the center.

Then the length of diameter is

Options :

1. ✖ $5\ cm$

2. ✔ $10\ cm$

3. ✖ $15\ cm$

4. ✖ $8\ cm$

Question Number : 21 Question Id : 89040114233 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The length of the tangent from the point (5, 1) to the circle $x^2 + y^2 + 6x - 4y - 3 = 0$ is

Options :

1. ✖ 81

2. ✔ 7

3. ✖ 29

4. ✖ 21

Question Number : 22 Question Id : 89040114234 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If length of the tangent is 8 cm and the distance between the center of the circle and the external point is 11 cm, then the area of the circle is

Options :

1. ✖ $100\ cm$

2. ✖ $197.14\ cm$

3. ✔ $179.14\ cm$

4. ✖ $110.14\ cm$

Question Number : 23 Question Id : 89040114235 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The equation of the parabola with focus (2, 0) and vertex (1, 0) is

Options :

1. ✖ $y^2 = 4x$

2. ✔ $y^2 = 4x - 4$

3. ✖ $y^2 = 4(x + 1)$

4. ✖ $y^2 = -4(x - 1)$

Question Number : 24 Question Id : 89040114236 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

If (2,0) is the vertex and y-axis is the directrix of a parabola then its focus is

Options :

1. ✖ (2, 0)

2. ✖ (-2, 0)

3. ✔ (4, 0)

4. ✖ (-4, 0)

Question Number : 25 Question Id : 89040114237 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The *eccentricity of* the ellipse $16x^2 + 7y^2 = 112$ *is*

Options :

1. ✖ $\frac{4}{3}$

2. ✖ $\frac{7}{16}$

3. ✖ $\frac{3}{\sqrt{7}}$

4. ✔ $\frac{3}{4}$

Question Number : 26 Question Id : 89040114238 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The value of $\lim_{n\to\infty} \frac{4x^3-x+1}{x^2-4x(1-x^2)} =$

Options :

1. ✖ 0

2. ✔ 1

3. ✖ -1

4. ✖ ∞

Question Number : 27 Question Id : 89040114239 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The value of $\lim_{x\to 1}\left(\frac{x^3-1}{x-1}\right)$ is

Options :

1. ✗ 0

2. ✗ 1

3. ✓ 3

4. ✗ Limit does not exist

Question Number : 28 Question Id : 89040114240 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The derivative of x^x with respective to x is

Options :

1. ✗ $x^x(x+logx)$

2. ✗ $x^x(x-logx)$

3. ✗ $x^x(1-logx)$

4. ✓ $x^x(1+logx)$

Question Number : 29 Question Id : 89040114241 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$\frac{d}{dx}(tan^{-1}\frac{x}{a}) =$

Options :

1. ✖ $\frac{a}{a^2-x^2}$

2. ✖ $\frac{1}{a^2+x^2}$

3. ✖ $\frac{1}{a^2-x^2}$

4. ✔ $\frac{a}{a^2+x^2}$

Question Number : 30 Question Id : 89040114242 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$If\ y=\sqrt{sinx+\sqrt{sinx+\sqrt{sinx+----\infty}}}\ \text{ then } \frac{dy}{dx}=$$

Options :

1. ✖ $\frac{cosx}{1-2y}$

2. ✖ $\frac{sinx}{1-2y}$

3. ✖ $\frac{-sinx}{1-2y}$

4. ✔ $\frac{-cosx}{1-2y}$

Question Number : 31 Question Id : 89040114243 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Slope of the normal to the curve $x^{2/3}+y^{2/3}=2$ *at the point* $(1,1)$ is

Options :

1. ✖ -1

2. ✔ 1

3. ✖ $1/2$

4. ✖ $-1/2$

Question Number : 32 Question Id : 89040114244 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The equation of the tangent to the curve $y = x^3$ at $(1, 1)$ is

Options :

1. ✖ $3x - y + 2 = 0$

2. ✖ $x - 10y - 50 = 0$

3. ✔ $3x - y - 2 = 0$

4. ✖ $x - 10y + 50 = 0$

Question Number : 33 Question Id : 89040114245 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

For what value of x, the function $2x^3 + 3x^2 - 36x + 10$ has minimum

Options :

1. ✖ - 2

2. ✖ - 3

3. ✔

4. ✖ 1

Question Number : 34 Question Id : 89040114246 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $z = x^2 - y^2$ then $\frac{1}{x}\frac{\partial z}{\partial x} + \frac{1}{y}\frac{\partial z}{\partial y} =$

Options :

1. ✖ 1

2. ✖ $2x + 2y$

3. ✔ 0

4. ✖ $2x - 2y$

Question Number : 35 Question Id : 89040114247 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $u = e^{xy}$, then the value of $\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2}$ at $(1, 1)$ is

Options :

1. ✖ e

2. ✔ $2e$

3. ✖ 1

4. ✖ 0

Question Number : 36 Question Id : 89040114248 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The value of $\int (\log secx) \tan x \ dx$ *is*

Options :

1. ✖ $\sec x + c$

2. ✖ $\log \sec x + c$

3. ✔ $\frac{1}{2} (\log sec\ x)^2 + c$

4. ✖ $\log (\log \sec x)$

Question Number : 37 Question Id : 89040114249 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$\int sin^2 x \ dx =$

Options :

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

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

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

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

Question Number : 38 Question Id : 89040114250 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$\int \frac{dx}{25-x^2} =$

Options :

1. ✖ $\frac{1}{5} log \left|\frac{x-5}{x+5}\right| + c$

2. ✖ $\frac{1}{5} log \left|\frac{x+5}{x-5}\right| + c$

3. ✔ $\frac{1}{10} log \left|\frac{5+x}{5-x}\right| + c$

4. ✖ $\frac{1}{10} log \left|\frac{5-x}{5+x}\right| + c$

Question Number : 39 Question Id : 89040114251 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The value of $\int_0^1 x(1-x)^9 \, dx$ *is*

Options :

1. ✔ $\frac{1}{110}$

2. ✖ $\frac{1}{120}$

3. ✖ $\frac{-1}{110}$

4. ✖ $\frac{-1}{120}$

Question Number : 40 Question Id : 89040114252 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$\int_{-a}^{a}|x|\ dx\ =$

Options :

1. ✖ a

2. ✖ $2a$

3. ✖ 0

4. ✔ a^2

Question Number : 41 Question Id : 89040114253 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$\int_{0}^{\pi/2}\frac{\cos 2x}{\sin x+\cos x}\ dx\ =$

Options :

1. ✖ -1

2. ✔ 0

3. ✖ 1

4. ✖ $\frac{\pi}{2}$

Question Number : 42 Question Id : 89040114254 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The area bounded by the curve $y = 4x^2$, the x-axis, the line x=0 and the line x = 1 is

Options :

1. ✖ 2

2. ✖ $2/3$

3. ✖ $1/3$

4. ✔ $4/3$

Question Number : 43 Question Id : 89040114255 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The RMS value of x^2 in $[0, 1]$ is

Options :

1. ✔ $\frac{1}{\sqrt{5}}$

2. ✖ $\frac{1}{5}$

3. ✖ $\frac{1}{\sqrt{3}}$

4. ✖ $\frac{1}{3}$

Question Number : 44 Question Id : 89040114256 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The degree of the differential equation $y' + y = \frac{5}{y'}$ is

Options :

1. ✖ 1

2. ✔ 2

3. ✖ 3

4. ✖ 4

Question Number : 45 Question Id : 89040114257 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The order of the differential equation whose general solution is y = a sin x + b cos x is

(where a and b are arbitrary constants)

Options :

1. ✔ 2

2. ✖ 4

3. ✖ 1

4. ✖ 3

Question Number : 46 Question Id : 89040114258 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The differential equation $\frac{dy}{dx} = -\left(\frac{x+y}{1+x^2}\right)$ is

Options :

1. ✖ of Variable separable form

2. ✔ First order Linear equation

3. ✖ Homogeneous

4. ✖ Exact differentia Equation

Question Number : 47 Question Id : 89040114259 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The solution of the differential equation $\frac{dy}{dx} = 1 + y^2$ is

Options :

1. ✖ $y = tanx + c$

2. ✔ $y = \tan(x + c)$

3. ✖ $y = tanx$

4. ✖ $y = -\tan(x + c)$

Question Number : 48 Question Id : 89040114260 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The solution of the differential equation $\frac{dy}{dx} + \frac{y}{x} = x^2$ under the condition that $y(1) = 1$ is

Options :

1. ✖ $4xy = x^3 + 3$

2. ✔ $4xy = x^4 + 3$

3. ✖ $4xy = x^3 - 3$

4. ✖ $4xy = x^4 - 3$

Question Number : 49 Question Id : 89040114261 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The solution of the differential equation $\frac{d^3y}{dx^3} + 3\frac{d^2y}{dx^2} + 2\frac{dy}{dx} = 0$ *is*

Options :

1. ✔ $y = a + be^{-x} + ce^{-2x}$

2. ✖ $y = a + be^{x} + ce^{2x}$

3. ✖ $y = ae^{-x} + be^{-2x} + ce^{x}$

4. ✖ $y = a + be^{-2x} + ce^{-3x}$

Question Number : 50 Question Id : 89040114262 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The particular integral of $\frac{d^2y}{dx^2} + 3\frac{dy}{dx} + 2y = e^{-2x}$ is

Options :

1. ✔ $-xe^{-2x}$

2. ✖ xe^{-2x}

3. ✖ $-\frac{x}{2}e^{-2x}$

4. ✖ $\frac{x}{2}e^{-2x}$

Physics

Section Id :	890401280
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory

Number of Questions :	25
Number of Questions to be attempted :	25
Section Marks :	25
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	890401304
Question Shuffling Allowed :	Yes

Question Number : 51 Question Id : 89040114263 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If we choose velocity V, length L and force F as fundamental physical quantities then how would you express power in terms of V, L and F ?

Options :

1. ✔ $F^1 L^0 V^1$

2. ✖ $F^1 L^{-1} V^1$

3. ✖ $F^1 L^{-1} V^2$

4. ✖ $F^1 L^{-2} V^3$

Question Number : 52 Question Id : 89040114264 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which pair of physical quantities have same dimensional formula

Options :

1. ✖ Torque and momentum

2. ✖ Surface tension and tension

3. ✔ Pressure and modulus of elasticity

4. ✖ Force constant and Planck's constant

Question Number : 53 Question Id : 89040114265 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $A + B = C$ and $A^2 + B^2 = C^2$ then the angle between vectors A and B is

Options :

1. ✖ $0°$

2. ✖ $60°$

3. ✔ $90°$

4. ✖ $120°$

Question Number : 54 Question Id : 89040114266 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The area of rectangle with sides as $A = 3i + 4j$ and $B = i + 3j$ is

Options :

1. ✔ $5\sqrt{10}$ units

2. ✖ 10 units

3. ✖ $2\sqrt{10}$ units

4. ✖ $10\sqrt{5}$ units

Question Number : 55 Question Id : 89040114267 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If a pebble is thrown vertically upwards from the top of a tower with velocity 5 m/s. It strikes the ground after 3 seconds. With what velocity the pebble strikes the ground? (take $g = 10\ ms^{-2}$)

Options :

1. ✖ 10 m/s

2. ✖ 20 m/s

3. ✔ 25 m/s

4. ✖ 30 m/s

Question Number : 56 Question Id : 89040114268 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If a body released from the top of a tower of height H meter takes T seconds to reach the ground , where is the body at time T/2 seconds from the ground ?

Options :

1. ✖ $\frac{H}{2}$

2. ✖ $\frac{H}{4}$

3. ✔ $\frac{3H}{4}$

4. ✖ $\frac{2H}{3}$

Question Number : 57 Question Id : 89040114269 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A body starts from rest and travels with uniform acceleration. If the distance covered in first 2 seconds is 'x' and next 2 seconds is 'y', then

Options :

1. ✖ $y = x$

2. ✖ $y = 2x$

3. ✔ $y = 3x$

4. ✖ $y = 4x$

Question Number : 58 Question Id : 89040114270 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A juggler throws ball into air. He throws one whenever the previous one is at its highest point. How high do the balls rise if he throws n balls each second ?

Options :

1. ✔ $\frac{g}{2n^2}$

2. ✖ $\frac{g}{n}$

3. ✖ $\frac{g}{2n}$

4. ✖ $\frac{n^2}{g}$

Question Number : 59 Question Id : 89040114271 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A block of mass m is lying on an inclined plane. The coefficient of friction between the plane and the block is μ. The force required to move the block up the inclined plane will be

Options :

1. ✗ $mg \sin\theta - \mu mg \cos\theta$

2. ✓ $mg \sin\theta + \mu mg \cos\theta$

3. ✗ $mg \cos\theta - \mu mg \sin\theta$

4. ✗ $mg \cos\theta + \mu mg \sin\theta$

Question Number : 60 Question Id : 89040114272 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The time taken by a body to slide down the smooth inclined plane is 4sec. The time taken by a body to slide $1/4^{th}$ of the length of the plane is

Options :

1. ✗ 1 sec

2. ✓ 2 sec

3. ✗ 3 sec

4. ✗ 0.5 sec.

Question Number : 61 Question Id : 89040114273 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A body of mass 2 Kg changes its velocity from (3 i - 4 j) m/s to (6j + 2 k) m/s.

what is the change in kinetic energy of the body?

Options :

1. ✔ 15 J

2. ✖ 12 J

3. ✖ 18 J

4. ✖ 20 J

Question Number : 62 Question Id : 89040114274 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

At her maximum height a girl in a swing is 3m above the ground and at the lowest point she is 2m above the ground. Her maximum velocity is

Options :

1. ✖ $\sqrt{29.4}$ m/s

2. ✖ $\sqrt{9.8}$ m/s

3. ✔ $\sqrt{19.6}$ m/s

4. ✖ 9.8 m/s

Question Number : 63 Question Id : 89040114275 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

An engine delivers 1000 watt of power with 80% efficiency. The input power is

Options :

1. ✖ 800 W

2. ✖ 1000 W

3. ✔ 1250 W

4. ✖ 1500 W

Question Number : 64 Question Id : 89040114276 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If a seconds pendulum on the earth is taken to a planet whose gravity is half of the gravity on earth , its time period on that planet is

Options :

1. ✖ 2 sec

2. ✖ 4 sec

3. ✖ $4\sqrt{2}$ sec

4. ✔ $2\sqrt{2}$ sec

Question Number : 65 Question Id : 89040114277 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The amplitude of a simple harmonic oscillator is A. When the velocity of particle is half of its maximum velocity, then its position is at

Options :

1. ✖ $\frac{A}{2}$

2. ✖

$\frac{\sqrt{3}A}{4}$

3. ✖ $\frac{A}{4}$

4. ✔ $\frac{\sqrt{3}A}{2}$

Question Number : 66 Question Id : 89040114278 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The displacement of a particle executing SHM is $x = 3\sin 2t + 4\cos 2t$.

The amplitude of particle is

Options :

1. ✖ 7

2. ✖ 3

3. ✖ 4

4. ✔ 5

Question Number : 67 Question Id : 89040114279 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The beats are produced by two sound sources of same amplitude and of nearly equal frequencies. The maximum intensity of beats will be _____ when compared to that of one source is

Options :

1. ✖ Same

2. ✖ Double

3. ✔ Four times

4. ✖ Eight times

Question Number : 68 Question Id : 89040114280 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A siren emitting sound of frequency 800 Hz is going away from a static listener with a speed of 30 m/s. Frequency of sound heard by the listener is (Velocity of sound in air = 340 m/s)

Options :

1. ✖ 286.5 Hz

2. ✖ 418.2 Hz

3. ✔ 733.3 Hz

4. ✖ 644.5 Hz

Question Number : 69 Question Id : 89040114281 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

During the melting of a slab of ice at 273K at atmospheric pressure

Options :

1. ✖ Positive work is done by the ice-water system on the atmosphere

2. ✔ Positive work is done on the ice-water system by the atmosphere

3. ✖ Negative work is done on the ice-water system by the atmosphere

4. ✖ The internal energy of the ice-water system decreases

Question Number : 70 Question Id : 89040114282 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A gas is compressed at a constant pressure of 50 N/m^2 from a volume of 10 m^3 to a volume of 4 m^3. Energy of 100 J is then added to the gas by heating. Its internal energy is

Options :

1. ✔ Increases by 400 J

2. ✖ Increases by 200 J

3. ✖ Increases by 100 J

4. ✖ Decreases by 200 J

Question Number : 71 Question Id : 89040114283 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A vessel containing 10 liters of an ideal gas at a pressure of 760 mm of Hg is connected to an evacuated 9 liter vessel. The resultant pressure is

Options :

1. ✔ 400 mm of Hg

2. ✖ 1440 mm of Hg

3. ✖ 40 mm of Hg

4. ✖ 760 mm of Hg

Question Number : 72 Question Id : 89040114284 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A sealed glass jar is full of water. When its temperature is decreased to 0° C

Options :

1. ✖ The glass jar remains as it is with ice

2. ✖ The glass jar remains as it is with water

3. ✖ Glass jar contains half the amount of ice mixed with water

4. ✔ The glass jar breaks due to the formation of ice

Question Number : 73 Question Id : 89040114285 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A bubble rises from the bottom of a lake 90 m deep on reaching the surface, its volume becomes (Atmospheric pressure is 10 m of water)

Options :

1. ✖ 4 times

2. ✖ 8 times

3. ✔ 10 times

4. ✖ 3 times

Question Number : 74 Question Id : 89040114286 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

An endoscope is employed by a physician to view the internal parts of a body organ. It is based on the principle of

Options :

1. ✖ Refraction

2. ✖ Reflection

3. ✖ Dispersion

4. ✔ Total internal reflection

Question Number : 75 Question Id : 89040114287 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Light of wavelength 5000 A° falls on a sensitive plate with photo electric work function of 1.9 eV. The kinetic energy of the emitted photoelectron will be

Options :

1. ✔ 0.58 eV

2. ✖ 2.48 eV

3. ✖ 1.24 eV

4. ✖ 1.16 eV

Chemistry

Section Id :	890401281
Section Number :	3
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	25
Number of Questions to be attempted :	25
Section Marks :	25
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	890401305

Question Shuffling Allowed : Yes

Question Number : 76 Question Id : 89040114288 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Consider the elements with atomic numbers Z = 1 to Z=20. The number of

elements with only one unpaired electron in their ground state is

Options :

1. ✖ 10

2. ✖ 6

3. ✔ 8

4. ✖ 12

Question Number : 77 Question Id : 89040114289 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Identify the orbital which has lobes not orienting on the axis

Options :

1. ✖ P_x

2. ✖ P_y

3. ✖ $d_{x^2-y^2}$

4. ✔ d_{yz}

Question Number : 78 Question Id : 89040114290 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If n, l, m and s represent the symbols of quantum numbers, the impossible quantum number set for the electron in terms of n, l, m and s respectively is

Options :

1. ✔ 2, 0, -1, +1/2

2. ✖ 3, 0, 0, -1/2

3. ✖ 4, 1, +1, +1/2

4. ✖ 3, 2, -1, -1/2

Question Number : 79 Question Id : 89040114291 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Consider the elements with atomic numbers Z = 8, 9, 11, 19 and 20. The number of ionic compounds possible with the elements having these atomic numbers is

Options :

1. ✔ 6

2. ✖ 5

3. ✖ 10

4. ✖ 8

Question Number : 80 Question Id : 89040114292 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

In which of the molecules lone pair, bond pair of electrons ratio is 2:3 ?

Options :

1. ✖ Cl_2

2. ✖ O_2

3. ✖ HCl

4. ✔ N_2

Question Number : 81 Question Id : 89040114293 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

How many moles of urea is present in 250 ml of 0.2 M solution of it?

Options :

1. ✖ 0.03

2. ✖ 0.04

3. ✔ 0.05

4. ✖ 0.06

Question Number : 82 Question Id : 89040114294 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

x ml of 0.1 M NaOH solution is diluted with distilled water to get 250 ml of 0.01 M solution.

The value of x (in ml) is

Options :

1. ✖ 12.5

2. ✔ 25

3. ✖ 37.5

4. ✖ 50

Question Number : 83 Question Id : 89040114295 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

3×10^{22} molecules of Na_2CO_3 (molecular weight = 106) present in 500 ml of solution.

The normality of the solution formed is ($N = 6 \times 10^{23}$ mol^{-1})

Options :

1. ✖ 0.1 N

2. ✔ 0.2 N

3. ✖ 0.4 N

4. ✖ 0.05 N

Question Number : 84 Question Id : 89040114296 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Identify the pair containing only Lewis acids

Options :

1. ✔ BF_3, NH_3

2. ✖ H^+, BF_3

3. ✖ F^-, H_2O

4. ✖ NH_4^+, NH_3

Question Number : 85 Question Id : 89040114297 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

4 g of NaOH is dissolved in 1.0 L solution. The pH of solution is

Options :

1. ✔ 13

2. ✖ 1

3. ✖ 12

4. ✖ 7.4

Question Number : 86 Question Id : 89040114298 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Number of coulombs corresponding to 1 mol of electrons approximately is equal to

Options :

1. ✖ 1.93×10^5

2. ✔ 9.65×10^4

3. ✖ 1.93×10^4

4. ✖ 9.65×10^5

Question Number : 87 Question Id : 89040114299 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Aqueous solution of which of the following does not act as electrolyte?

Options :

1. ✔ Urea

2. ✖ Copper Sulphate

3. ✖ Silver Nitrate

4. ✖ Sodium Chloride

Question Number : 88 Question Id : 89040114300 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The amount of silver (in mg) deposited when 9.65 coulombs of electricity is passed through an aqueous solution of silver nitrate is (Ag=108 u) (1F=96500 C mol^{-1})

Options :

1. ✖ 16.2

2. ✖ 21.2

3. ✔ 10.8

4. ✖ 6.4

Question Number : 89 Question Id : 89040114301 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The standard electrode potentials of Zn, Ag and Cu are -0.76, +0.80 and +0.34 V respectively. Identify the correct statement from the following.

Options :

1. ✖ Ag can oxidize Zn and Cu

2. ✖ Ag can reduce Zn^{2+} and Cu^{2+}

3. ✔ Zn can reduce Ag^{+} and Cu^{2+}

4. ✖ Cu can oxidize Zn and Ag

Question Number : 90 Question Id : 89040114302 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

In the removal of permanent hardness of water by permutit process, Na^{+} ions of permutit are exchanged with which ions of water ?

Options :

1. ✖ K^{+}, Ba^{2+}

2. ✖ Fe^{2+}, K^{+}

3. ✔ Ca^{2+}, Mg^{2+}

4. ✖ Zn^{2+}, Cu^{2+}

Question Number : 91 Question Id : 89040114303 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

What is the degree of hardness (in ppm) of a sample containing 19 mg of $MgCl_2$ (Molecular Weight = 95) in 2 kg water sample? (express it in terms of equivalents of $CaCO_3$)

Options :

1. ✔ 10

2. ✖ 20

3. ✖ 30

4. ✖ 40

Question Number : 92 Question Id : 89040114304 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Identify the pair of chlorides responsible for permanent hardness of water.

Options :

1. ✖ NaCl, KCl

2. ✖ $CaCl_2$, KCl

3. ✖ $AlCl_3$, $MgCl_2$

4. ✔ $MgCl_2$, $CaCl_2$

Question Number : 93 Question Id : 89040114305 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The cell formed in bent pipes is an example of

Options :

1. ✖ Concentration Cell

2. ✖ Composition Cell

3. ✔ Stress Cell

4. ✖ Electrolytic Cell

Question Number : 94 Question Id : 89040114306 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Tarnishing of silver is due to formation of

Options :

1. ✖ Its sulphate layer

2. ✖ Its nitrate layer

3. ✔ Its sulphide layer

4. ✖ Its chloride layer

Question Number : 95 Question Id : 89040114307 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following is not a co-polymer?

Options :

1. ✖ Buna-S rubber

2. ✔ Neoprene rubber

3. ✖ Bakelite

4. ✖ Urea – Formaldehyde

Question Number : 96 Question Id : 89040114308 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The monomer involved in the formation of polystyrene is

Options :

1. ✖ $CH_2 = CH - Cl$

2. ✖ $CH_2 = CH - CN$

3. ✔ $CH_2 = CH - C_6H_5$

4. ✖ $CH_2 = CH - CH_3$

Question Number : 97 Question Id : 89040114309 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

We can overcome the undesirable properties of natural rubber by heating natural rubber with

Options :

1. ✖ Carbon

2. ✔ Sulphur

3. ✖ Phosphorus

4. ✖ Silicon

Question Number : 98 Question Id : 89040114310 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Liquefied petroleum gas (LPG) mainly contains

Options :

1. ✖ Methane, Ethane

2. ✖ Ethane, Propane

3. ✔ Butane, Isobutane

4. ✖ Ethene, Ethyne

Question Number : 99 Question Id : 89040114311 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Greenhouse effect is caused by

Options :

1. ✖ NO_2

2. ✖ CO

3. ✖ NO

4. ✔ CO_2

Question Number : 100 Question Id : 89040114312 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which compound is mainly responsible for the depletion of ozone layer?

Options :

1. ✖ CO_2

2. ✖ CH_4

3. ✖ CH_3OH

4. ✔ CF_2Cl_2

Civil Engineering

Section Id : 890401282

Section Number :	4
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	100
Number of Questions to be attempted :	100
Section Marks :	100
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	890401306
Question Shuffling Allowed :	Yes

Question Number : 101 Question Id : 89040114313 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The ability of materials to develop a characteristic behaviour under repeated loading is

Options :

1. ✔ Fatigue

2. ✖ Hardness

3. ✖ Resilience

4. ✖ Toughness

Question Number : 102 Question Id : 89040114314 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A bar of square cross section of side 10 mm and length 400 mm is subjected to a tensile load of 60 kN.

If the modulus of elasticity of the material is 200 GPa, the elongation of the bar is

Options :

1. ✖ 12 mm

2. ✖ 6 mm

3. ✖ 2.4 mm

4. ✔ 1.2 mm

Question Number : 103 Question Id : 89040114315 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the Poisson's ratio of the material is 0.25, then the ratio of modulus of rigidity to modulus of elasticity is

Options :

1. ✖ 0.25

2. ✔ 0.40

3. ✖ 2.0

4. ✖ 2.5

Question Number : 104 Question Id : 89040114316 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A composite bar consisting of two different materials having same length and same cross- sectional area will have the same

Options :

1. ✖ Stress

2. ✔ Strain

3. ✖ Load sharing

4. ✖ Poisson's ratio

Question Number : 105 Question Id : 89040114317 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The maximum energy that a given component can absorb without undergoing any permanent deformation up to elastic limit is known as

Options :

1. ✖ Hardness

2. ✖ Toughness

3. ✖ Resilience

4. ✔ Proof resilience

Question Number : 106 Question Id : 89040114318 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A simply supported beam AB of span 8 m carries a uniformly distributed load of 24 kN/m over the left half of span.

The ratio of the reactions of left support to right support is

Options :

1. ✖ 0.50

2. ✖ 0.33

3. ✔ 3

4. ✖ 2

Question Number : 107 Question Id : 89040114319 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A cantilever beam AB of span 3 m is fixed at A and free at B is subjected to a concentrated load of 50 kN acting

at a distance of 2 m from the fixed end. The maximum bending moment in the beam is

Options :

1. ✖

50 kNm at A

2. ✔ 100 kNm at A

3. ✖ 150 kNm at A

4. ✖ 100 kNm under the load.

Question Number : 108 Question Id : 89040114320 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A cantilever beam of length L is subjected to a uniformly distributed load of w kN/m over half of length from the free end.

The variation of bending moment in the left half of length is

Options :

1. ✖ No variation

2. ✔ Linear

3. ✖ Parabola

4. ✖ Cubic parabola

Question Number : 109 Question Id : 89040114321 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If a simply supported beam AB of span 6 m is subjected to a concentrated load of W acting at a distance of 2 m from the left support A, then

Options :

1. ✖ maximum bending moment occurs at the support A.

2. ✖ maximum shear force occurs at support B.

3. ✖ maximum bending moment occurs at the centre.

4. ✔ maximum bending moment occurs under the load.

Question Number : 110 Question Id : 89040114322 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A sudden increase or decrease in shear force diagram between any two points indicates that there is

Options :

1. ✖ no loading between the two points

2. ✔ concentrated load between the two points

3. ✖ uniformly distributed load between the two points

4. ✖ uniformly varying load between the two points.

Question Number : 111 Question Id : 89040114323 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A fixed beam AB of span 10 m is subjected to a concentrated load of 72 kN acting at mid span C.

The maximum bending moment in the beam is

Options :

1. ✖ 60 kNm

2. ✔ 90 kNm

3. ✖ 120 kNm

4. ✖ 180 kNm

Question Number : 112 Question Id : 89040114324 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

At the centroid of a loaded beam cross section,

Options :

1. ✔ bending stress is equal to zero

2. ✖ bending stress is maximum

3. ✖ shear stress is equal to zero

4. ✖ shear stress is minimum

Question Number : 113 Question Id : 89040114325 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A plate of 100 mm wide and 10 mm thick is bent into an arc of a circle of radius 10 m. If the modulus of elasticity of the material is 200 GPa, then the maximum bending stress induced in the plate is

Options :

1. ✖ 100 kN/m^2

2. ✔ 100 N/mm^2

3. ✖ 200 kN/m^2

4. ✖ 200 N/mm^2

Question Number : 114 Question Id : 89040114326 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The maximum bending stress induced in a beam of rectangular section is 160 N/mm². If the depth of beam is increased by two times, keeping all the parameters same, the maximum bending stress induced in the beam is

Options :

1. ✖ 20 N/mm²

2. ✔ 40 N/mm²

3. ✖ 80 N/mm²

4. ✖ 160 N/mm²

Question Number : 115 Question Id : 89040114327 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

For a cantilever beam of T cross section subjected to uniformly distributed load throughout the length, the maximum bending stress occurs at

Options :

1. ✖ mid depth

2. ✖ top of cross section

3. ✔ bottom of cross section

4. ✖ junction of flange and web

Question Number : 116 Question Id : 89040114328 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

If the maximum shear stress in a rectangular beam cross section is 120 N/mm², then the average shear stress is

Options :

1. ✖ 40 N/mm²

2. ✔ 80 N/mm²

3. ✖ 90 N/mm²

4. ✖ 180 N/mm²

Question Number : 117 Question Id : 89040114329 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The ratio of moment of inertia of the section about neutral axis to the extreme fibre distance from the neutral axis is

Options :

1. ✖ Moment of inertia

2. ✖ Radius of gyration

3. ✔ Section modulus

4. ✖ Polar moment of inertia

Question Number : 118 Question Id : 89040114330 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Theory of simple bending equation is applicable for

Options :

1. ✖ constant shear face and zero bending moment

2. ✔ constant bending moment and zero shear force

3. ✖ zero bending moment and zero shear force

4. ✖ constant bending moment and constant shear force

Question Number : 119 Question Id : 89040114331 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A simply supported rectangular beam of span 6 m having width of 100 mm and depth of 200 mm

is subjected to a uniformly distributed load of 20 kN/m over the entire span. The maximum shear stress induced in the beam is

Options :

1. ✖ 3 N/mm²

2. ✖ 4.5 N/mm²

3. ✖ 6 N/mm²

4. ✔ 9 N/mm²

Question Number : 120 Question Id : 89040114332 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A point in a circular beam of diameter D is subjected to a shear force of F. The ratio of average shear stress to maximum shear stress is

Options :

1. ✔ 0.75

2. ✖

1.33

3. ✖ 1.50

4. ✖ 0.67

Question Number : 121 Question Id : 89040114333 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

At the free end of a cantilever beam subjected to downward loads,

Options :

1. ✖ slope and deflections are minimum

2. ✔ slope and deflections are maximum

3. ✖ slope is maximum and deflection is minimum

4. ✖ slope is minimum and deflection is maximum

Question Number : 122 Question Id : 89040114334 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

According to moment area method, the vertical intercept at a point between the tangents drawn from two points is equal to moment of the area of

Options :

1. ✖ shear force diagram between those two points about the point under consideration divided by EI.

2. ✔ bending moment diagram between those two points about the point under consideration divided by EI

3. ✖ deflected curve between those two points about the point under consideration divided by EI

4. ✖ axial thrust diagram between those two points about the point under consideration divided by EI

Question Number : 123 Question Id : 89040114335 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The expression $EI\frac{d^2y}{dx^2}$ at a section of a beam represents

Options :

1. ✖ Rate of loading

2. ✖ Deflection

3. ✖ Shear force

4. ✔ Bending moment

Question Number : 124 Question Id : 89040114336 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A cantilever beam of span 2 m carries a concentrated load of 48 kN at the free end. If the flexural rigidity of beam EI = 20,000 kNm^2,

the slope at the free end is

Options :

1. ✖ 3.2×10^{-3} radians

2. ✔ 4.8×10^{-3} radians

3. ✖ 48×10^{-3} radians

4. ✖

64×10^{-3} radians

Question Number : 125 Question Id : 89040114337 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A simply supported beam of span $2L$ and flexural rigidity EI is subjected to a uniformly distributed load of w/m throughout the span.

The deflection at mid span is

Options :

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

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

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

4. ✗ $\frac{1}{48}\cdot\frac{wL^4}{EI}$

Question Number : 126 Question Id : 89040114338 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A simply supported beam of span L and flexural rigidity EI is subjected to a concentrated load of W at mid span.

The ratio of maximum deflection to maximum slope anywhere in the beam is

Options :

1. ✗ $\frac{L}{2}$

2. ✓ $\frac{L}{3}$

3. ✗ $\frac{L}{4}$

4. ✖ $\frac{L}{5}$

Question Number : 127 Question Id : 89040114339 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

A fixed beam of span 8 m and flexural rigidity EI =51,200 kNm^2 is subjected to a concentrated load of 96 kN at mid span.

The maximum deflection under the load is

Options :

1. ✖ 1. 2.5×10^{-3} mm

2. ✖ 2. 5×10^{-3} mm

3. ✔ 5 mm

4. ✖ 2.5 mm

Question Number : 128 Question Id : 89040114340 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Continuous beam is a

Options :

1. ✖ Statically determinate structure

2. ✔ Statically indeterminate structure

3. ✖ Kinematically determinate structure

4. ✖ Dynamically determinate structure

Question Number : 129 Question Id : 89040114341 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A propped cantilever AB of span 8 m is fixed at A and supported by a prop at B. It is subjected to a concentrated load of 64 kN acting at mid span.

The reaction of the pop is

Options :

1. ✔ 20 kN

2. ✖ 32 kN

3. ✖ 40 kN

4. ✖ 44 kN

Question Number : 130 Question Id : 89040114342 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The nature of bending moment developed at the intermediate supports of a continuous beam carrying downward loads is

Options :

1. ✖ Sagging

2. ✔ Hogging

3. ✖ Sagging or Hogging

4. ✖ Clockwise

Question Number : 131 Question Id : 89040114343 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

A column whose slenderness ratio is greater than 120 is known as

Options :

1. ✖ Short column

2. ✖ Medium column

3. ✔ Long column

4. ✖ Composite column

Question Number : 132 Question Id : 89040114344 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Compression members always tends to buckle in the direction of

Options :

1. ✖ Horizontal axis

2. ✖ Vertical axis

3. ✖ Minimum cross section

4. ✔ Least radius of gyration

Question Number : 133 Question Id : 89040114345 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The effective length of electric pole of 6.5 m height above the ground level is

Options :

1. ✖

3.25 m

2. ✖ 6.5 m

3. ✖ 9.75 m

4. ✔ 13.0 m

Question Number : 134 Question Id : 89040114346 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A long Column with fixed ends can carry load as compared to one end fixed and the other free is

Options :

1. ✖ 2 times

2. ✖ 4 times

3. ✖ 8 times

4. ✔ 16 times

Question Number : 135 Question Id : 89040114347 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The ratio of effective length of a column and minimum radius of gyration of its cross-sectional area is known as

Options :

1. ✖ Crippling factor

2. ✖ Buckling factor

3. ✔ Slenderness ratio

4. ✖ Load factor

Question Number : 136 Question Id : 89040114348 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A three-member isosceles right-angle triangular truss is hinged at A and roller support at B such that the vertical member AB is perpendicular to the horizontal member AC.

If a vertical force of 100 kN is acting at C, the force in the member AC is equal to

Options :

1. ✖ zero

2. ✔ 100 kN

3. ✖ $100\sqrt{2}$ kN

4. ✖ $100/\sqrt{2}$ kN

Question Number : 137 Question Id : 89040114349 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If a truss consists of 6 joints and 3 reaction components, then the number of members required for determinate truss is

Options :

1. ✖ 8

2. ✔ 9

3. ✖ 12

4. ✖ 15

Question Number : 138 Question Id : 89040114350 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The force induced in the members of truss due to loading is

Options :

1. ✔ Axial force

2. ✖ Shear force

3. ✖ Bending moment

4. ✖ Twisting moment

Question Number : 139 Question Id : 89040114351 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

When the net horizontal force at the base of the dam exceeds the frictional resistance at the base, then the dam fails by

Options :

1. ✖ Crushing

2. ✔ Sliding

3. ✖ Overturning

4. ✖ Buckling

Question Number : 140 Question Id : 89040114352 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The intensity of active earth pressure on retaining wall at a depth of 4 m with backfill having an angle of shearing resistance of 30^0 and unit weight of 18 kN/m^3 is

Options :

1. ✖ $12\ kN/m^2$

2. ✔ $24\ kN/m^2$

3. ✖ $48\ kN/m^2$

4. ✖ $60\ kN/m^2$

Question Number : 141 Question Id : 89040114353 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

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

Question Number : 142 Question Id : 89040114354 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

In limit state method of design, if x_u is the depth of the neutral axis, then the distance of centroid of the compressive force from the extreme compression fibre is

Options :

1. ✖ $0.57x_u$

2. ✖ $0.45x_u$

3. ✔ $0.42x_u$

4. ✖ $0.36x_u$

Question Number : 143 Question Id : 89040114355 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

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 for concrete mix at 28 days is

Options :

1. ✖ 25.0 MPa

2. ✖ 29.0 MPa

3. ✔ 31.6 MPa

4. ✖ 33.0 MPa

Question Number : 144 Question Id : 89040114356 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In limit state design of concrete structures, the strain distribution assumed is

Options :

1. ✔ Linear

2. ✖ Rectangular

3. ✖ Parabolic

4. ✖ Hyperbolic

Question Number : 145 Question Id : 89040114357 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

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

Question Number : 146 Question Id : 89040114358 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a reinforced concrete beam, the maximum spacing of vertical shear reinforcement measured along the axis shall not exceed

Options :

1. ✖ $0.5d$ or 300 mm

2. ✖

$0.5d$ or 250 mm

3. ✔ $0.75d$ or 300 mm

4. ✖ $0.75d$ or 250 mm

Question Number : 147 Question Id : 89040114359 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

According to IS:456, the stress strain curve for concrete in limit state method of design is

Options :

1. ✖ Linear upto 0.002 strain and uniform upto failure

2. ✖ Straight line upto 0.002 strain and then parabolic upto failure

3. ✖ Linear upto 0.002 strain and then parabolic upto failure

4. ✔ Parabolic upto 0.002 strain and uniform upto failure

Question Number : 148 Question Id : 89040114360 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

For a cantilever slab of 1.4 m span, the minimum thickness required from serviceability criteria is

Options :

1. ✖ 100 mm

2. ✖ 140 mm

3. ✖ 180 mm

4. ✔ 200 mm

Question Number : 149 Question Id : 89040114361 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The minimum tension reinforcement required for a rectangular beam of width 250 mm and effective depth 400 mm using Fe 500 grade steel reinforcement is

Options :

1. ✖ 120 mm^2

2. ✖ 150 mm^2

3. ✔ 170 mm^2

4. ✖ 180 mm^2

Question Number : 150 Question Id : 89040114362 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The width of a foot bridge slab is 3 m width with central supporting beam of 250 mm × 600 mm size and 6 m length. The effective width of flange is

Options :

1. ✖ 3.0 m

2. ✖ 1.5 m

3. ✔ 1.25 m

4. ✖ 1.0 m

Question Number : 151 Question Id : 89040114363 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Using working stress method for design of RC members, 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 : 152 Question Id : 89040114364 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✖ 0.02

2. ✔ 0.002

3. ✖ 0.035

4. ✖ 0.0035

Question Number : 153 Question Id : 89040114365 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

In an RCC column, the minimum diameter of longitudinal bar shall not be less than

Options :

1. ✖ 10 mm

2. ✔ 12 mm

3. ✖ 16 mm

4. ✖ 20 mm

Question Number : 154 Question Id : 89040114366 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

In an isolated square concrete footing, the critical section for two-way shear occurs

Options :

1. ✖ at face of column

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

3. ✖ at a distance d from the face of the column

4. ✔ at a distance $d/2$ from periphery of column face

Question Number : 155 Question Id : 89040114367 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

As per IS:456, the columns are designed for a minimum eccentricity of

Options :

1. ✖ 15 mm

2. ✔ 20 mm

3. ✖ 25 mm

4. ✖ 40 mm

Question Number : 156 Question Id : 89040114368 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Self-weight considered for the design of footing is

Options :

1. ✖ 20% of the column load

2. ✖ 15% of the column load

3. ✔ 10% of the column load

4. ✖ 5% of the column load

Question Number : 157 Question Id : 89040114369 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The minimum diameter of longitudinal bar in a column is

Options :

1. ✖ 6 mm

2. ✖

8 mm

3. ✔ 12 mm

4. ✖ 16 mm

Question Number : 158 Question Id : 89040114370 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The stress level in concrete in limit state method when compared to working stress method is

Options :

1. ✖ Same

2. ✖ Lower

3. ✔ Higher

4. ✖ no comparison

Question Number : 159 Question Id : 89040114371 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The effective length of unsupported length of column L when effectively held in position at both ends and restrained against rotation at one end is

Options :

1. ✖ $1.0L$

2. ✖ $0.85L$

3. ✔ $0.80L$

4. ✖ $0.65L$

Question Number : 160 Question Id : 89040114372 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The anchorage value for a bar of 20 mm diameter bent into an angle of 90^0 is

Options :

1. ✖ 40 mm

2. ✖ 80 mm

3. ✔ 160 mm

4. ✖ 320 mm

Question Number : 161 Question Id : 89040114373 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A 30 m chain is divided into

Options :

1. ✖ 90 links

2. ✖ 100 links

3. ✔ 150 links

4. ✖ 200 links

Question Number : 162 Question Id : 89040114374 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The main survey stations are located on the groud by

Options :

1. ✖ Line sketches

2. ✖ Index sketches

3. ✖ Highlighted sketches

4. ✔ Reference sketches

Question Number : 163 Question Id : 89040114375 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

If the fore bearing of a line AB is S15°40' W, then the back bearing of line is

Options :

1. ✔ 15°40'

2. ✖ 364°20'

3. ✖ S15°40'E

4. ✖ N15°40'W

Question Number : 164 Question Id : 89040114376 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

If the sum of interior angles in a closed traverse is 1080°, then the number of sides in a traverse is

Options :

1. ✖ 10

2. ✔ 8

3. ✖ 7

4. ✖ 6

Question Number : 165 Question Id : 89040114377 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

For land survey using theodolite, if N is the number of sides of a closed traverse, then the angular error of closure in minutes should not exceed

Options :

1. ✔ $\sqrt{N}$

2. ✖ $10\sqrt{N}$

3. ✖ $15\sqrt{N}$

4. ✖ $30\sqrt{N}$

Question Number : 166 Question Id : 89040114378 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The sum of rises and sum of falls in levelling are 1.125 and 5.635 respectively. If the RL of last point is 246.875, then the RL of first point is

Options :

1. ✔ 251.385

2. ✖

253.635

3. ✗ 240.115

4. ✗ 242.365

Question Number : 167 Question Id : 89040114379 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Two points A and B are taken on opposite banks of a river in reciprocal levelling.
When the level was set up near A, the staff readings on A and B were 1.225 and 2.375 .
When the level was set up near B, the respective readings were 0.945 and 2.115 .
The true differences of level between A and B is

Options :

1. ✗ 1.150 m fall from A to B

2. ✗ 1.170 m rise from A to B

3. ✓ 1.160 m fall from A to B

4. ✗ 1.160 m rise from A to B

Question Number : 168 Question Id : 89040114380 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

When contours of a different elevations cross each other, then it indicates a

Options :

1. ✗ Pond

2. ✗ Steep slope

3. ✗ Vertical cliff

4. ✔ Overhanging cliff

Question Number : 169 Question Id : 89040114381 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the length and reduced bearing of a line are 100 m and S60°W respectively, then the departure is

Options :

1. ✖ 50 m

2. ✖ 70.7 m

3. ✔ 86.6 m

4. ✖ 100 m

Question Number : 170 Question Id : 89040114382 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The size of the theodolite is defined according to the

Options :

1. ✖ Height of the stand

2. ✖ Length of the telescope

3. ✖ weight of the theodolite

4. ✔ Diameter of graduated horizontal circle

Question Number : 171 Question Id : 89040114383 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The multiplying constant and additive constant of a tacheometer are 100 and 2 m respectively.

When the line of sight is horizontal and the staff held vertically, the staff readings are 2.780 m and 1.280 m respectively,

then the distance between the tacheometer and staff station is

Options :

1. ✔ 152 m

2. ✖ 150 m

3. ✖ 76 m

4. ✖ 75 m

Question Number : 172 Question Id : 89040114384 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

When a line changes its direction, the angle of the forward line with the external of the preceding line is known as

Options :

1. ✖ Azimuth

2. ✖ Dip

3. ✖ Declination

4. ✔ Deflection angle

Question Number : 173 Question Id : 89040114385 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is the first operation of Total station when it is sighted to the target?

Options :

1. ✔

Rotation of optical axis.

2. ✖ Rotation of vertical axis

3. ✖ Rotation of horizontal axis

4. ✖ Rotation of line of collimation

Question Number : 174 Question Id : 89040114386 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is a GIS operation?

Options :

1. ✖ Geodata

2. ✖ Spatial data

3. ✔ Geoprocessing

4. ✖ Global Processing

Question Number : 175 Question Id : 89040114387 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is the set of classification of static GPS surveying technology?

Options :

1. ✔ Short and Long base lines

2. ✖ Short and Normal base lines

3. ✖ Long and Medium base lines

4. ✖ Long and Normal base lines

Question Number : 176 Question Id : 89040114388 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

At a certain point in oil, the shear stress and velocity gradient are 0.2 N/m^2 and 0.1 s^{-1} respectively, then the dynamic viscosity is

Options :

1. ✔ 2 $N\text{-}s/m^2$

2. ✖ 50 $N\text{-}s/m^2$

3. ✖ 0.5 $N\text{-}s/m^2$

4. ✖ 0.02 $N\text{-}s/m^2$

Question Number : 177 Question Id : 89040114389 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the diameter of droplet and surface tension of water are 0.05 mm and 0.075 N/m respectively, then the pressure inside of droplet in excess of the outside pressure intensity is

Options :

1. ✖ 3 kN/m^2

2. ✔ 6 kN/m^2

3. ✖ 3×10^3 kN/m^2

4. ✖ 6×10^3 kN/m^2

Question Number : 178 Question Id : 89040114390 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

When a body is immersed in a fluid either wholly or partially, it is lifted up by a force which is equal to the weight of the fluid displaced by the body is known as

Options :

1. ✖ Pascal's law

2. ✖ Euler's principle

3. ✖ Reynold's law

4. ✔ Archimede's principle

Question Number : 179 Question Id : 89040114391 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The specific gravity and height of mercury in a column are 13.6 and 20 cm respectively. For the same maximum pressure at the bottom, the equivalent height of water column is

Options :

1. ✖ 27.2 cm

2. ✖ 27.2 m

3. ✔ 272 cm

4. ✖ 272 m

Question Number : 180 Question Id : 89040114392 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A rectangular gate of width 2 m and height 3 m lies in a vertical plane, the top of which is at the surface of water.

If the unit height of water is 10 kN/m^3, then the force exerted by the water in the gate is

Options :

1. ✖ 20 kN

2. ✖ 30 kN

3. ✖ 60 kN

4. ✔ 90 kN

Question Number : 181 Question Id : 89040114393 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Flow of fluid through a long pipe of constant diameter at a constant rate is

Options :

1. ✔ Steady uniform flow

2. ✖ Steady non-uniform flow

3. ✖ Unsteady uniform flow

4. ✖ Unsteady non-uniform flow

Question Number : 182 Question Id : 89040114394 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

For flowing through the same discharge, the diameters of a pipe at section 1 and section 2 are 50 mm and 100 mm respectively.

If the velocity of fluid at section 1 is 8 m/s, then the velocity at section 2 is

Options :

1. ✖ 8 m/s

2. ✖ 6 m/s

3. ✖ 4 m/s

4. ✔ 2 m/s

Question Number : 183 Question Id : 89040114395 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the coefficient of discharge and coefficient of velocity for an orifice are 0.63 and 0.75 respectively, then the coefficient of contraction is

Options :

1. ✖ 0.47

2. ✖ 0.75

3. ✔ 0.84

4. ✖ 1.19

Question Number : 184 Question Id : 89040114396 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a pipe flow, the hydraulic grade line will be obtained by the summation of

Options :

1. ✔ Pressure head and datum head

2. ✖ Velocity head and datum head

3. ✖

Pressure head and velocity head

4. ✖ Pressure head, velocity head and datum head

Question Number : 185 Question Id : 89040114397 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

For a long pipe of diameter D with a given discharge, fiction factor and length of pipe, the loss of head due to friction (h_f) is

Options :

1. ✖ inversely proportional to D

2. ✖ directly proportional to D

3. ✖ inversely proportional to D^3

4. ✔ inversely proportional to D^5

Question Number : 186 Question Id : 89040114398 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A trapezoidal open channel with a base width of 4 m and side slope 1 horizontal to 2 vertical carries water at a depth of 2 m.

The flow area of section is

Options :

1. ✖ 16 m^2

2. ✖ 12 m^2

3. ✔ 10 m^2

4. ✖ 8 m^2

Question Number : 187 Question Id : 89040114399 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the Darcey's friction factor is 0.008 and the acceleration due to gravity is 10 m/s^2, then chezey's constant is

Options :

1. ✖ 120

2. ✔ 100

3. ✖ 80

4. ✖ 60

Question Number : 188 Question Id : 89040114400 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The hydraulic radius for a most economical rectangular open channel with a base width of 5 m is

Options :

1. ✔ 1.25 m

2. ✖ 2.5 m

3. ✖ 3.75 m

4. ✖ 5.0 m

Question Number : 189 Question Id : 89040114401 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Pelton wheel is classified according to the main direction of flow of water in the runner as

Options :

1. ✖ Radial flow

2. ✔ Tangential flow

3. ✖ Axial flow

4. ✖ Mixed flow

Question Number : 190 Question Id : 89040114402 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The fluid coming into the centrifugal pump is accelerated by

Options :

1. ✖ Nozzle

2. ✖ Governer

3. ✖ Throttle

4. ✔ Impeller

Question Number : 191 Question Id : 89040114403 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The method of irrigation used for row crops is

Options :

1. ✖ Zig zag method

2. ✔ Furrow method

3. ✖ Ring Basin method

4. ✖ Border strip method

Question Number : 192 Question Id : 89040114404 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Duty of water of canal system does not depends on

Options :

1. ✔ Area of land irrigated

2. ✖ Method of cultivation

3. ✖ Type of the crop

4. ✖ Base period of the crop

Question Number : 193 Question Id : 89040114405 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The precipitation caused due to lifting of air masses converging into low pressure area is known as

Options :

1. ✔ Cyclonic precipitation

2. ✖ Convective precipitation

3. ✖ Orographic precipitation

4. ✖ Turbulent precipitation

Question Number : 194 Question Id : 89040114406 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following is a non-automatic rain gauge ?

Options :

1. ✖ Syphon type rain gauge

2. ✔ Symon's rain gauge

3. ✖ Weighing bucket rain gauge

4. ✖ Tipping bucket rain gauge

Question Number : 195 Question Id : 89040114407 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Using Dicken's formula with the constant C as 12, the flood discharge for a catchment area of 16 km^2 is

Options :

1. ✖ 1.33 cumecs

2. ✖ 48 cumecs

3. ✔ 96 cumecs

4. ✖ 192 cumecs

Question Number : 196 Question Id : 89040114408 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Weir / barrage classified according to use is known as

Options :

1. ✖ Storage dam

2. ✔ Diversion dam

3. ✖ Detention dam

4. ✖ Check dam

Question Number : 197 Question Id : 89040114409 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

For a rectangular masonry dam, the weight of dam, uplift pressure and horizontal force causing the sliding are 300 kN, 60 kN and 80 kN respectively. If the coefficient of friction between the dam base and soil is 0.5, then the factor of safety against sliding is

Options :

1. ✖ 1.07

2. ✔ 1.5

3. ✖ 1.88

4. ✖ 2.0

Question Number : 198 Question Id : 89040114410 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A dam of height 12 m is trapezoidal in section with top width of 2 m and bottom width of 8 m.

The unit weight of the material of dam and water are 20 kN/m^3 and 10 kN/m^3 respectively.

If the dam is allowed to store water upto a height of 10 m, the horizontal pressure on the dam is

Options :

1. ✖ 100 kN

2. ✔ 500 kN

3. ✖ 720 kN

4. ✖ 1000 kN

Question Number : 199 Question Id : 89040114411 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The structure constructed at the head of a canal taking off from a reservoir behind a weir or dam is called as

Options :

1. ✖ Sluice regulator

2. ✔ Head regulator

3. ✖ Silt excluder

4. ✖ Silt extractor

Question Number : 200 Question Id : 89040114412 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Lacey's theory is used for the design of

Options :

1. ✔ Canal

2. ✖ Regulator

3. ✖ Fish ladder

4. ✖ Apron