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 19th Sep 2021 Shift1
Duration :	180
Total Marks :	200
Display Marks:	No
Calculator :	None
Magnifying Glass Required? :	No
Ruler Required? :	No
Eraser Required? :	No
Scratch Pad Required? :	No
Rough Sketch/Notepad Required? :	No
Protractor Required? :	No
Show Watermark on Console? :	Yes
Highlighter :	No
Auto Save on Console? (SA type of questions will be always auto saved) :	Yes
Is this Group for Examiner? :	No

Mathematics

Section Id : 477203366

Section Number :	1
Mandatory or Optional :	Mandatory
Number of Questions :	50
Section Marks :	50
Enable Mark as Answered Mark for Review and Clear Response :	Yes

Question Number : 1 Question Id : 47720318629 Display Question Number : Yes Is Question Mandatory : No

If $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} 5 & 6 \\ 7 & 8 \end{bmatrix}$ then $AB^T =$

Options :

1. ✖ $\begin{bmatrix} 19 & 22 \\ 43 & 50 \end{bmatrix}$

2. ✔ $\begin{bmatrix} 17 & 23 \\ 39 & 53 \end{bmatrix}$

3. ✖ $\begin{bmatrix} 26 & 38 \\ 30 & 44 \end{bmatrix}$

4. ✖ $\begin{bmatrix} 19 & 23 \\ 30 & 53 \end{bmatrix}$

Question Number : 2 Question Id : 47720318630 Display Question Number : Yes Is Question Mandatory : No

If A is any square matrix, then $A - A^T$ is

Options :

1. ✖ a null matrix

2. ✖ an identity matrix

3. ✖ a symmetric matrix

4. ✔ a skew-symmetric matrix

Question Number : 3 Question Id : 47720318631 Display Question Number : Yes Is Question Mandatory : No

If $\begin{vmatrix} 4 & -5 & 6 \\ 7 & x & 8 \\ -1 & 2 & -3 \end{vmatrix} = 0$, then, x =

Options :

1. ✖ 0

2. ✖ $-\frac{55}{6}$

3. ✔ $-\frac{15}{2}$

4. ✖ 1

Question Number : 4 Question Id : 47720318632 Display Question Number : Yes Is Question Mandatory : No

If $A = \begin{bmatrix} 3 & -5 \\ -7 & 2 \end{bmatrix}$, $I = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ and B is a square matrix such that $AB = I$, then, $B =$

Options :

1. ✖ $\begin{bmatrix} 2 & 5 \\ 7 & 3 \end{bmatrix}$

2. ✖ $\begin{bmatrix} -2 & 5 \\ 7 & -3 \end{bmatrix}$

3. ✔ $-\frac{1}{29}\begin{bmatrix} 2 & 5 \\ 7 & 3 \end{bmatrix}$

4. ✖ $-\frac{1}{29}\begin{bmatrix} -2 & 5 \\ 7 & -3 \end{bmatrix}$

Question Number : 5 Question Id : 47720318633 Display Question Number : Yes Is Question Mandatory : No

If $x = \alpha, y = \beta, z = \gamma$ is the unique solution of the system of simultaneous linear equations $x - 2y + z = 5$, $2x + y - 2z = -3$ and $x - 2y + 3z = 9$, then, $\gamma =$

Options :

1. ✔ 2

2. ✖ -2

3. ✖ -3

4. ✖ 3

Question Number : 6 Question Id : 47720318634 Display Question Number : Yes Is Question Mandatory : No

If $\frac{4x-22}{3x^2+2x-8} = \frac{A}{x+2} + \frac{B}{3x-4}$, then, $A+B =$

Options :

1. ✔ -2

2. ✖ 0

3. ✖ 2

4. ✖ 4

Question Number : 7 Question Id : 47720318635 Display Question Number : Yes Is Question Mandatory : No

If $\frac{4-7x^2}{3x^3+6x^2} = \frac{A}{x} + \frac{Bx+C}{x^2+2}$, then, $A+C =$

Options :

1. ✖ 0

2. ✔ $\frac{2}{3}$

3. ✖ $\frac{3}{2}$

4. ✖ 2

Question Number : 8 Question Id : 47720318636 Display Question Number : Yes Is Question Mandatory : No

If $\tan\theta = -\frac{4}{3}$ and θ is not in the second quadrant, then, $\cos\theta + \csc\theta =$

Options :

1. ✔ $-\frac{13}{20}$

2. ✖ $-\frac{1}{5}$

3. ✖ $\frac{27}{20}$

4. ✖ $\frac{7}{5}$

Question Number : 9 Question Id : 47720318637 Display Question Number : Yes Is Question Mandatory : No

The sine function, whose period is $\frac{4}{5}$, is

Options :

1. ✖ $\sin\frac{5\pi}{4}x$

2. ✖ $\sin\frac{4\pi}{5}x$

3. ✔ $\sin\frac{5\pi}{2}x$

4. ✖ $\sin\frac{2\pi}{5}x$

Question Number : 10 Question Id : 47720318638 Display Question Number : Yes Is Question Mandatory : No

If $A+B=\frac{3\pi}{4}$, then, $(1-\tan A)(1-\tan B)=$

Options :

1. ✖ 0

2. ✖ 1

3. ✔ 2

4. ✖ -2

Question Number : 11 Question Id : 47720318639 Display Question Number : Yes Is Question Mandatory : No

If $0<A<\frac{\pi}{4}$ and $\sin A=\frac{3}{5}$, then, $\sin 2A+\cos 2A=$

Options :

1. ✖ $\frac{17}{25}$

2. ✖ $\frac{24}{25}$

3. ✖ $\frac{9}{25}$

4. ✔ $\frac{31}{25}$

Question Number : 12 Question Id : 47720318640 Display Question Number : Yes Is Question Mandatory : No

$\cos 56^0 + \sin 26^0 - \sin 86^0 =$

Options :

1. ✖ -1

2. ✔ 0

3. ✖ 1

4. ✖ 2

Question Number : 13 Question Id : 47720318641 Display Question Number : Yes Is Question Mandatory : No

The general solution of the trigonometric equation $\sec x = 4\cos x$ is $x =$

Options :

1. ✔ $2n\pi \pm \frac{\pi}{3}$ or $2n\pi \pm \frac{2\pi}{3}$

2. ✖ $2n\pi \pm \frac{\pi}{6}$ or $2n\pi \pm \frac{5\pi}{6}$

3. ✖ $2n\pi \pm \frac{\pi}{4}$ or $2n\pi \pm \frac{3\pi}{4}$

4. ✖ $n\pi + (-1)^n \frac{\pi}{3}$ or $n\pi + (-1)^n \frac{2\pi}{3}$

Question Number : 14 Question Id : 47720318642 Display Question Number : Yes Is Question Mandatory : No

The general solution of the trigonometric equation $\cos 4\theta = \cos 3\theta$ is $\theta =$

Options :

1. ✖ $n\pi + \frac{\pi}{6}$

2. ✖ $2n\pi + \frac{\pi}{3}$

3. ✔ $\frac{2n\pi}{7}$ or $2n\pi$

4. ✖

$\frac{n\pi}{7}$ or $n\pi$

Question Number : 15 Question Id : 47720318643 Display Question Number : Yes Is Question Mandatory : No

$$\cos\left[\frac{\pi}{2}+\cos^{-1}\left(-\frac{3}{5}\right)\right]=$$

Options :

1. ✖ $\frac{4}{5}$

2. ✖ $\frac{3}{5}$

3. ✔ $-\frac{4}{5}$

4. ✖ $-\frac{3}{5}$

Question Number : 16 Question Id : 47720318644 Display Question Number : Yes Is Question Mandatory : No

$$\cot\left[\mathrm{Tan}^{-1}\left(\frac{1}{6}\right)+\mathrm{Tan}^{-1}\left(\frac{5}{7}\right)\right]=$$

Options :

1. ✖ 0

2. ✖ $\frac{1}{\sqrt{3}}$

3. ✔ 1

4. ✖ $\sqrt{3}$

Question Number : 17 Question Id : 47720318645 Display Question Number : Yes Is Question Mandatory : No

In a triangle ABC, if $b = 3, c = 4$ and $\cos A = \frac{7}{8}$, then, $a =$

Options :

1. ✖ 5

2. ✔ 2

3. ✖ 6

4. ✖ 8

Question Number : 18 Question Id : 47720318646 Display Question Number : Yes Is Question Mandatory : No

If $i^2 = -1$, then, $(1 - i)^{2020} =$

Options :

1. ✔ -2^{1010}

2. ✖ 2^{1010}

3. ✖ 2^{2020}

4. ✖ -2^{2020}

Question Number : 19 Question Id : 47720318647 Display Question Number : Yes Is Question Mandatory : No

If $i^2 == -1$, then, $(\sqrt{3}+i)^4 + (\sqrt{3}-i)^4 =$

Options :

1. ✖ 32

2. ✖ -32

3. ✖ 16

4. ✔ -16

Question Number : 20 Question Id : 47720318648 Display Question Number : Yes Is Question Mandatory : No

If $(1,2)$ and $(2,1)$ are the ends of one of the diameters of a circle, then the equation of the circle is

Options :

1. $x^2 + y^2 - 3x - 3y - 4 = 0$ ✖

2. $x^2 + y^2 - 3x + 3y - 4 = 0$ ✖

3. $x^2 + y^2 + 3x - 3y - 4 = 0$ ✖

4. $x^2 + y^2 - 3x - 3y + 4 = 0$ ✔

Question Number : 21 Question Id : 47720318649 Display Question Number : Yes Is Question Mandatory : No

The equation of the circle of radius 2 with its centre at $(2,2)$ is

Options :

1. $x^2 + y^2 - 4x - 4y + 4 = 0$ ✔

2. $x^2 + y^2 + 4x + 4y + 4 = 0$ ✖

3. $x^2 + y^2 - 4x - 4y + 12 = 0$ ✖

4. $x^2 + y^2 + 4x + 4y + 12 = 0$ ✖

Question Number : 22 Question Id : 47720318650 Display Question Number : Yes Is Question

Mandatory : No

If the centre of the circle $x^2 + y^2 - 6x + ky + 9 = 0$ lies on the line $2x + y - 4 = 0$, then, the radius of that circle is

Options :

1. ✖ 1

2. ✔ 2

3. ✖ 3

4. ✖ 4

Question Number : 23 Question Id : 47720318651 Display Question Number : Yes Is Question Mandatory : No

Distance from the focus of the parabola $y^2 = 8x$ to the point $(2,4)$ on it is

Options :

1. ✖ 1

2. ✖ 2

3. ✖ 3

4. ✔ 4

Question Number : 24 Question Id : 47720318652 Display Question Number : Yes Is Question Mandatory : No

If e is the eccentricity and a is the length of the semi-minor axis of the ellipse $9x^2 + 4y^2 = 36$, then, $e^2 + a^2 =$

Options :

1. ✔ $\frac{41}{9}$

2. ✖ $\frac{23}{9}$

3. ✖ $\frac{17}{3}$

4. ✖ $\frac{11}{3}$

Question Number : 25 Question Id : 47720318653 Display Question Number : Yes Is Question Mandatory : No

One of the foci of the hyperbola $\frac{x^2}{9} - \frac{y^2}{16} = -1$ is

Options :

1. ✖ $(5,0)$

2. ✔ $(0,5)$

3. ✖ $(4,0)$

4. ✖ $(0,3)$

Question Number : 26 Question Id : 47720318654 Display Question Number : Yes Is Question

Mandatory : No

$$\lim_{x\to 0}\frac{2^x-1}{\sqrt{2+x}-\sqrt{2}}=$$

Options :

1. ✖ $\sqrt{2}\log 2$

2. ✖ $2\log 2$

3. ✔ $2\sqrt{2}\log 2$

4. ✖ $\text{Log } 2$

Question Number : 27 Question Id : 47720318655 Display Question Number : Yes Is Question Mandatory : No

$$\text{If } y=\sqrt{\frac{2+x^2}{2-x^2}}\text{ , then, }\frac{dy}{dx}=$$

Options :

1. ✔ $\frac{4x}{(2-x^2)\sqrt{4-x^4}}$

2. ✖ $\frac{4x}{(2-x^2)\sqrt{4-x^2}}$

3. ✖ $\frac{4x}{(4-x^2)\sqrt{2-x^4}}$

4. ✖ $\frac{2x}{(2-x^2)\sqrt{4-x^4}}$

Question Number : 28 Question Id : 47720318656 Display Question Number : Yes Is Question Mandatory : No

If $2x^2 - 3xy + y^2 - 4x + 6y - 7 = 0$, then, $\frac{dy}{dx} =$

Options :

1. ✖ $\frac{-4x - 3y + 4}{3x + 2y + 6}$

2. ✔ $\frac{4x - 3y - 4}{3x - 2y - 6}$

3. ✖ $\frac{4x + 3y + 4}{3x - 2y - 6}$

4. ✖ $\frac{4x - 3y - 4}{3x + 2y - 6}$

Question Number : 29 Question Id : 47720318657 Display Question Number : Yes Is Question Mandatory : No

If the radius of a sphere is increased from 5 cm to 5.03 cm, then, the approximate relative error in its surface area is

Options :

1. ✔ 0.012

2. ✖ 0.06

3. ✖ 0.08

4. ✖ 0.1

Question Number : 30 Question Id : 47720318658 Display Question Number : Yes Is Question Mandatory : No

The equation of the normal at $(1,1)$ to the curve $y = 2x^3 - 3x^2 + x + 1$ is

Options :

1. ✔ $x + y - 2 = 0$

2. ✖ $x - y = 0$

3. ✖ $2x - 3y + 1 = 0$

4. ✖ $x - 2y + 1 = 0$

Question Number : 31 Question Id : 47720318659 Display Question Number : Yes Is Question Mandatory : No

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

Options :

1. ✔ $\mathrm{Tan}^{-1}(3)$

2. ✖ $\text{Tan}^{-1}(2)$

3. ✖ $\frac{\pi}{4}$

4. ✖ $\frac{\pi}{2}$

Question Number : 32 Question Id : 47720318660 Display Question Number : Yes Is Question Mandatory : No

If the volume of a cube is increasing at the rate of 5 cu. cm./sec , the rate of change in the length of the edge of the cube, when the length of the edge is 5 cm., is

Options :

1. ✖ $\frac{1}{15}$ sq. cm. /sec

2. ✖ 15 cm. /sec

3. ✔ $\frac{1}{15}$ cm. /sec

4. ✖ $\frac{1}{3}$ cm. /sec

Question Number : 33 Question Id : 47720318661 Display Question Number : Yes Is Question Mandatory : No

The interval in which the function $f(x) = 2x^3 - 9x^2 + 12x - 6$ is strictly increasing is

Options :

1. ✖ $(1,2)$

2. ✖ $[1,2]$

3. ✖ $(-\infty, 1] \cup [2, \infty)$

4. ✔ $(-\infty, 1) \cup (2, \infty)$

Question Number : 34 Question Id : 47720318662 Display Question Number : Yes Is Question Mandatory : No

If the perimeter of a rectangle is 40 units, then the area of that rectangle is maximum when its dimensions are

Options :

1. ✖ 14, 6

2. ✖ 22, 18

3. ✔ 10, 10

4. ✖ 20, 20

Question Number : 35 Question Id : 47720318663 Display Question Number : Yes Is Question Mandatory : No

If $u = \frac{x^2+y^2}{x-y}$, then, $\frac{\partial u}{\partial x} + \frac{\partial u}{\partial y} =$

Options :

1. ✖ 0

2. ✖ u

3. ✔ $2\left(\frac{x+y}{x-y}\right)$

4. ✖ $2u$

Question Number : 36 Question Id : 47720318664 Display Question Number : Yes Is Question Mandatory : No

$$\int \frac{x^2+2x-1}{\sqrt{x^3+3x^2-3x+6}}\,dx =$$

Options :

1. ✔ $\frac{2}{3}\sqrt{x^3+3x^2-3x+6}+c$

2. ✖ $\frac{1}{3}\sqrt{x^3+3x^2-3x+6}+c$

3. ✖ $\frac{2}{3\sqrt{x^3+3x^2-3x+6}}+c$

4. ✖

$$\frac{1}{6\sqrt{x^3+3x^2-3x+6}}+c$$

Question Number : 37 Question Id : 47720318665 Display Question Number : Yes Is Question Mandatory : No

$$\int e^{2x}\sec 2x(1+\tan 2x)\,dx =$$

Options :

1. ✖ $e^{2x}\sec 2x+c$

2. ✖ $e^{2x}\tan 2x+c$

3. ✔ $\frac{1}{2}e^{2x}\sec 2x+c$

4. ✖ $2e^{2x}\sec 2x+c$

Question Number : 38 Question Id : 47720318666 Display Question Number : Yes Is Question Mandatory : No

$$\int \frac{dx}{\sqrt{x^2-2x+5}} =$$

Options :

1. ✖ $\text{Tanh}^{-1}\left(\frac{x-1}{2}\right)+c$

2. ✖ $\text{Sinh}^{-1}(x-1)+c$

3. ✖ $\text{Cosh}^{-1}\left(\frac{x-1}{2}\right)+c$

4. ✔ $\text{Sinh}^{-1}\left(\frac{x-1}{2}\right)+c$

Question Number : 39 Question Id : 47720318667 Display Question Number : Yes Is Question Mandatory : No

$$\int_{-2}^{2}\frac{x^2}{x-1}\,dx=$$

Options :

1. ✖ $8+\log\frac{1}{3}$

2. ✔ $4-\log 3$

3. ✖ $2-\log 3$

4. ✖ $4+\log 3$

Question Number : 40 Question Id : 47720318668 Display Question Number : Yes Is Question Mandatory : No

The area enclosed between the X-axis and the curve $y = (x-2)^2 - 9$ is

Options :

1. ✖ 54

2. ✖ $\frac{320}{3}$

3. ✔ 36

4. ✖ $\frac{124}{3}$

Question Number : 41 Question Id : 47720318669 Display Question Number : Yes Is Question Mandatory : No

The volume formed when the area bounded by the parabola $y^2 = 8x$, the X-axis and the ordinates at $x = 0$ and $x = 2$ rotates about the X-axis is (in cubic units)

Options :

1. ✖ 4π

2. ✖ 8π

3. ✖ 32π

4. ✔ 16π

Question Number : 42 Question Id : 47720318670 Display Question Number : Yes Is Question

Mandatory : No

Mean value of $\frac{1}{4+x^2}$ on $[-2,2]$ is

Options :

1. ✖ $\frac{\pi}{4}$

2. ✖ $\frac{\pi}{8}$

3. ✖ $\frac{\pi}{32}$

4. ✔ $\frac{\pi}{16}$

Question Number : 43 Question Id : 47720318671 Display Question Number : Yes Is Question Mandatory : No

Root Mean Square value of $\sqrt{9-2x^2}$ over the range $x = 0$ to $x = 3$ is

Options :

1. ✔ $\sqrt{3}$

2. ✖ 3

3. ✖ $\sqrt{6}$

4. ✖ 9

Question Number : 44 Question Id : 47720318672 Display Question Number : Yes Is Question Mandatory : No

The differential equation of the family of curves $y = Ae^{3x} + Be^{-2x}$, where A and B are arbitrary constants, is

Options :

1. ✖ $\frac{d^2y}{dx^2} - 5\frac{dy}{dx} + 6y = 0$

2. ✖ $\frac{d^2y}{dx^2} - \frac{dy}{dx} + 6y = 0$

3. ✖ $\frac{d^2y}{dx^2} + \frac{dy}{dx} - 6y = 0$

4. ✔ $\frac{d^2y}{dx^2} - \frac{dy}{dx} - 6y = 0$

Question Number : 45 Question Id : 47720318673 Display Question Number : Yes Is Question Mandatory : No

The general solution of the differential equation $\frac{dy}{dx} = e^{x+y}$ is

Options :

1. ✖ $e^x + e^y = c$

2. ✖ $e^x - e^y = c$

3. ✔ $e^{x+y} + ce^{y} + 1 = 0$

4. ✖ $e^{x+y} = ce^{y} + 1$

Question Number : 46 Question Id : 47720318674 Display Question Number : Yes Is Question Mandatory : No

The general solution of the differential equation $\frac{dy}{dx} - \frac{3y}{x} = \frac{2y^2}{x^2}$ is

Options :

1. ✔ $y = cx^2(x + y)$

2. ✖ $\frac{y}{x - y} = cx^2$

3. ✖ $y = cx(x + y)$

4. ✖ $y = cx(x - y)$

Question Number : 47 Question Id : 47720318675 Display Question Number : Yes Is Question Mandatory : No

The general solution of the differential equation $\frac{dy}{dx} - \frac{2y}{x} = x^2e^{2x}$ is

Options :

1. ✖ $2y = xe^{2x} + 2cx^2$

2. ✔ $2y = x^2e^{2x} + 2cx^2$

3. ✖ $y = 2x^2e^{2x} + cx^2$

4. ✖ $y = x^2e^{2x} + cx$

Question Number : 48 Question Id : 47720318676 Display Question Number : Yes Is Question Mandatory : No

The general solution of the differential equation $\frac{dy}{dx} + y\cot x = y^3 \sin^2 x$ is

Options :

1. ✖ $2x^2y + \csc^2 x = cy$

2. ✖ $2xy^2 + \sin^2 x = cy^2$

3. ✔ $2xy^2 + \csc^2 x = cy^2$

4. ✖ $2xy + \csc^2 x = cy^2$

Question Number : 49 Question Id : 47720318677 Display Question Number : Yes Is Question Mandatory : No

The particular integral of the differential equation $(D^2 - 3D + 2)y = e^{3x}$ is

Options :

1. ✖ $\frac{1}{20}e^{3x}$

2. ✖ $\frac{1}{16}e^{3x}$

3. ✖ $\frac{1}{3}e^{3x}$

4. ✔ $\frac{1}{2}e^{3x}$

Question Number : 50 Question Id : 47720318678 Display Question Number : Yes Is Question Mandatory : No

The particular integral of the differential equation $(D^2 + 9)y = \sin 3x$ is

Options :

1. ✔ $-\frac{x\cos 3x}{6}$

2. ✖ $\frac{x\cos 3x}{6}$

3. ✖ $-\frac{x\sin 3x}{6}$

4. ✖

$$\frac{x \sin 3x}{6}$$

Physics

Section Id :	477203367
Section Number :	2
Mandatory or Optional :	Mandatory
Number of Questions :	25
Section Marks :	25
Enable Mark as Answered Mark for Review and Clear Response :	Yes

Question Number : 51 Question Id : 47720318679 Display Question Number : Yes Is Question Mandatory : No

The dimension of Universal Gas Constant "R" is:

Options :

1. ✖ $[M^2 L^2 T^{-2} K^{-1}]$

2. ✖ $[M^1 L^2 T^{-2}]$

3. ✔ $[M^1 L^2 T^{-2} K^{-1}]$

4. ✖ $[M^2 L^2 T^{-2} K^0]$

Question Number : 52 Question Id : 47720318680 Display Question Number : Yes Is Question Mandatory : No

The value of Planck's constant 'h' is 6.626×10^{-34} J.Hz^{-1}. Its value in eV is

Options :

1. ✖ 1.054×10^{-34}

2. ✔ 4.135×10^{-15}

3. ✖ 0.241×10^{15}

4. ✖ Unchanged

Question Number : 53 Question Id : 47720318681 Display Question Number : Yes Is Question Mandatory : No

A unit vector perpendicular to $A=\hat{i}+\hat{j}-\hat{k}$ and $B=2\hat{i}-\hat{j}+3\hat{k}$ is

Options :

1. ✖ $\hat{n}=(2\hat{i}-\hat{j}-3\hat{k})/\sqrt{14}$

2. ✔ $\hat{n}=(2\hat{i}-5\hat{j}-3\hat{k})/\sqrt{38}$

3. ✖ $\hat{n}=(2\hat{i}-5\hat{j}-3\hat{k})/\sqrt{28}$

4. ✖ $\hat{n}=(\hat{i}-\hat{j}-\hat{k})/\sqrt{3}$

Question Number : 54 Question Id : 47720318682 Display Question Number : Yes Is Question Mandatory : No

If the two vectors **A** and **B** are such that |**A-B**|= |**A+B**| then

Options :

1. ✖ **A = B**

2. ✖ **A** is parallel to **B**

3. ✖ $|\mathbf{B}| = 0$

4. ✔ **A** is perpendicular to **B**

Question Number : 55 Question Id : 47720318683 Display Question Number : Yes Is Question Mandatory : No

A rubber ball of mass 0.2 kg falls onto the floor. The ball hits with a speed of 8 m/s and rebounds with approximately the same speed. High speed photographs show that the ball is in contact with the floor for 10^{-3} s. Then the average force exerted on the ball by the floor is

Options :

1. ✖ 1,600 N

2. ✖ 0 N

3. ✔ 3,200 N

4. ✖ 320 N

Question Number : 56 Question Id : 47720318684 Display Question Number : Yes Is Question Mandatory : No

A projectile is fired with a speed 'u' at an angle θ with the horizontal. Find its speed when its direction of motion makes an angle α with the horizontal.

Options :

1. ✖ $u\cos(\theta)\cos(\alpha)$

2. ✖ $u\cos(\theta)$

3. ✖ $u\cos(\alpha)$

4. ✔ $u\cos(\theta)\sec(\alpha)$

Question Number : 57 Question Id : 47720318685 Display Question Number : Yes Is Question Mandatory : No

A person travelling on a straight line moves with a uniform velocity 'v_1' for a distance 'x' and with a uniform velocity 'v_2' for the next equal distance. The average velocity 'v' is given by

Options :

1. ✖ $v = \frac{v_1 + v_2}{2}$

2. ✖ $v = \sqrt{v_1 v_2}$

3. ✔ $\frac{2}{v} = \frac{1}{v_1} + \frac{1}{v_2}$

4. ✖ $\frac{1}{v} = \frac{1}{v_1} + \frac{1}{v_2}$

Question Number : 58 Question Id : 47720318686 Display Question Number : Yes Is Question Mandatory : No

A ball is dropped from a height 'H'. If it takes 0.2 sec to cross the last 6.0 m before hitting the ground, the value of height 'H' from which it was dropped is

Options :

1. ✔ 48 m

2. ✖ 42 m

3. ✖ 12 m

4. ✖ 30 m

Question Number : 59 Question Id : 47720318687 Display Question Number : Yes Is Question Mandatory : No

Mark the correct statement about the frictional force 'f' when a body slides across a surface with coefficient of friction μ.

Options :

1. ✖ The magnitude of 'f' is less than μN

2. ✔ 'f' is independent of the area of contact

3. ✖ 'f' depends on the area of contact

4. ✖ 'f' is directly proportional to the instantaneous velocity of the body

Question Number : 60 Question Id : 47720318688 Display Question Number : Yes Is Question Mandatory : No

A body starts slipping down an incline and moves half meter in half second. How long will it take to move the next half meter?

Options :

1. ✔ 0.2 sec

2. ✖ 0.5 sec

3. ✖ 1.0 sec

4. ✖ 0.1 sec

Question Number : 61 Question Id : 47720318689 Display Question Number : Yes Is Question Mandatory : No

The energy needed to eject a 50kg spacecraft from the surface of the earth is (radius of the earth is 6.4×10^6 m)

Options :

1. ✖ 1.1×10^4 J

2. ✖ 1.1×10^9 J

3. ✖ 3.13×10^4 J

4. ✔ 3.13×10^9 J

Question Number : 62 Question Id : 47720318690 Display Question Number : Yes Is Question Mandatory : No

A particle of mass 'm' moves in one dimension along the positive x-axis. It is acted on by a constant force directed towards the origin with magnitude 'B', and an inverse square law repulsive force with magnitude (A/x^2) away from the origin. The equilibrium position x_0 of the mass is at

Options :

1. ✖ $x_0=0$

2. ✔ $x_0=(A/B)^{1/2}$

3. ✖ $x_0=(A/B)$

4. ✖ $x_0=(B/A)^{1/2}$

Question Number : 63 Question Id : 47720318691 Display Question Number : Yes Is Question Mandatory : No

Ocean thermal energy is due to

Options :

1. ✖ Energy stored by waves in the ocean

2. ✖ Tides arising out in the ocean

3. ✖ Pressure difference at different levels in the ocean

4. ✔ Temperature difference at different levels in the ocean

Question Number : 64 Question Id : 47720318692 Display Question Number : Yes Is Question Mandatory : No

Consider the wave $y = (10\ mm)\ \sin[(2\ cm^{-1})x - (60\ s^{-1})t]$. The time period of this wave is

Options :

1. ✔ $\frac{\pi}{30}$sec

2. ✖ $\frac{30}{\pi}$sec

3. ✖ $\frac{\pi}{60}$sec

4. ✖ $\frac{\pi}{120}$sec

Question Number : 65 Question Id : 47720318693 Display Question Number : Yes Is Question Mandatory : No

If the speed of sound at 0^0 C is 332ms^{-1}, then the atmospheric temperature of a day when sound travels 336 m in one second is

Options :

1. ✖ 4^0 C

2. ✖ 20^0 C

3. ✖ 17^0 C

4. ✔ 7^0 C

Question Number : 66 Question Id : 47720318694 Display Question Number : Yes Is Question Mandatory : No

A sound source vibrates with a frequency of 1.0 kHz. Two sound waves, originating from this source, travel along different paths in air, where one path is 166 cm longer than other and then meet at a point. Then what will be the nature of interference? The speed of sound in air is 332 ms^{-1}.

Options :

1. ✔ It will be a constructive interference

2. ✖ It will be a destructive interference

3. ✖ Provided information is insufficient to say about nature of interference

4. ✖ It will depend on the type of source

Question Number : 67 Question Id : 47720318695 Display Question Number : Yes Is Question Mandatory : No

A simple pendulum is taken to a place in space where its distance from the surface of the earth is equal to the radius of the earth. What will be the time period of small oscillations of the pendulum if the length of the string is 1.0 m. Take g = π^2 m/ s^2 at the surface of the earth.

Options :

1. ✖ 2 sec

2. ✔ 4 sec

3. ✖ $\frac{1}{\pi}$sec

4. ✖ 2πsec

Question Number : 68 Question Id : 47720318696 Display Question Number : Yes Is Question Mandatory : No

The motion of a block of mass 'm' is restricted on x-axis by attaching two identical springs of spring constant 'k' on its opposite sides. The other ends of the springs are fixed on walls. When the mass is displaced from its equilibrium position on either side, it executes a simple harmonic motion. The period of oscillations for this oscillation is

Options :

1. ✖ $2\pi\sqrt{\frac{m}{k}}$

2. ✖ $2\pi\sqrt{\frac{k}{m}}$

3. ✖ $2\pi\sqrt{\frac{2k}{m}}$

4. ✔ $2\pi\sqrt{\frac{m}{2k}}$

Question Number : 69 Question Id : 47720318697 Display Question Number : Yes Is Question Mandatory : No

Is it always true that $dU = C_v dT$?

Options :

1. ✖ Yes.

2. ✖ No, it is never true

3. ✔ It is true only for ideal gas

4. ✖ It is true only for non-ideal gas

Question Number : 70 Question Id : 47720318698 Display Question Number : Yes Is Question Mandatory : No

One mole of ideal monatomic gas is confined in a cylinder by a piston and is maintained at a constant temperature T_0 by thermal contact with a heat reservoir. The gas slowly expands from V_1 to V_2 while being held at the same temperature T_0. The change in internal energy of the gas is

Options :

1. ✖ $RT_0\ln(V_2/V_1)$

2. ✔ zero

3. ✖ RT_0

4. ✖ $RT_0\ln(V_1/V_2)$

Question Number : 71 Question Id : 47720318699 Display Question Number : Yes Is Question Mandatory : No

A pan filled with hot food cools from 94 °C to 86 °C in 2 minutes when the room temperature is at 20 °C. How long will it take to cool from 71 °C to 69 °C?

Options :

1. ✔ 0.7 min

2. ✖ 0.5 min

3. ✖ 0.4 min

4. ✖ 2 min.

Question Number : 72 Question Id : 47720318700 Display Question Number : Yes Is Question Mandatory : No

In an adiabatic expansion of an ideal gas

Options :

1. ✖ PV = constant

2. ✖ $PV^{\gamma-1} = \text{constant}$

3. ✖ $TV^{\gamma} = \text{constant}$

4. ✔ $P^{1-\gamma}T^{\gamma} = \text{constant}$

Question Number : 73 Question Id : 47720318701 Display Question Number : Yes Is Question Mandatory : No

The rms speed of a nitrogen (N_2) molecule at 300K is (One mole of N_2 has a mass of 28 g and kB = 1.38×10^{23} JK^{-1})

Options :

1. ✖ 450 ms^{-1}

2. ✖ 123 ms^{-1}

3. ✔ 517 ms^{-1}

4. ✖ 230 ms^{-1}

Question Number : 74 Question Id : 47720318702 Display Question Number : Yes Is Question Mandatory : No

Which of the following are not the properties of superconductors?

Options :

1. ✖ They possess infinite conductivity

2. ✖ They possess zero resistivity

3. ✔ They are ferromagnetic in nature

4. ✖ They are diamagnetic in nature

Question Number : 75 Question Id : 47720318703 Display Question Number : Yes Is Question Mandatory : No

The minimum energy required for a photoelectron to escape from a metal plate in a photocell is called

Options :

1. ✖ Planck's constant

2. ✔ Work function

3. ✖ Threshold energy

4. ✖ Stopping voltage

Chemistry

Section Id :	477203368
Section Number :	3
Mandatory or Optional :	Mandatory
Number of Questions :	25
Section Marks :	25
Enable Mark as Answered Mark for Review and Clear Response :	Yes

Question Number : 76 Question Id : 47720318704 Display Question Number : Yes Is Question Mandatory : No

Which of the following is not a fundamental particle?

Options :

1. ✖ Electron

2. ✖ Proton

3. ✔ Alpha particle

4. ✖ Neutron

Question Number : 77 Question Id : 47720318705 Display Question Number : Yes Is Question Mandatory : No

A given orbital labelled by the magnetic quantum number, m=-1. This cannot be

Options :

1. ✔ s-orbital

2. ✖ p-orbital

3. ✖ d-orbital

4. ✖ f-orbital

Question Number : 78 Question Id : 47720318706 Display Question Number : Yes Is Question Mandatory : No

Maximum number of electrons that may be present in one 4f-orbital is

Options :

1. ✔ 2

2. ✖ 4

3. ✖ 7

4. ✖ 14

Question Number : 79 Question Id : 47720318707 Display Question Number : Yes Is Question Mandatory : No

Which of the following is favourable condition for the formation of ionic bond?

Options :

1. ✖ Small cation with small charge

2. ✖ Small anion with large charge

3. ✔ Large difference in the electronegativity

4. ✖ Small cation with large charge

Question Number : 80 Question Id : 47720318708 Display Question Number : Yes Is Question Mandatory : No

The covalency of nitrogen in HNO_2 is

Options :

1. ✖ 0

2. ✖ 2

3. ✔ 3

4. ✖ 5

Question Number : 81 Question Id : 47720318709 Display Question Number : Yes Is Question Mandatory : No

The normality of 0.98%(w/v) H_2SO_4 solution is

Options :

1. ✖ 0.1N

2. ✔ 0.2N

3. ✖ 0.4N

4. ✖ 1 N

Question Number : 82 Question Id : 47720318710 Display Question Number : Yes Is Question Mandatory : No

The equivalent weight of $CuSO_4$ when it is converted to Cu_2I_2 (M= Mol.wt)

Options :

1. ✔

M/1

2. ✖ M/2

3. ✖ M/3

4. ✖ 2M

Question Number : 83 Question Id : 47720318711 Display Question Number : Yes Is Question Mandatory : No

Which of the following is centi-normal solution ?

Options :

1. ✖ 1 N

2. ✖ N/10

3. ✖ N/20

4. ✔ N/100

Question Number : 84 Question Id : 47720318712 Display Question Number : Yes Is Question Mandatory : No

The unit for ionic product of water is

Options :

1. ✖ Mole/kg

2. ✖ Mole-kg

3. ✔ $Mole^2lit^{-2}$

4. ✖ $Mole^2lit^2$

Question Number : 85 Question Id : 47720318713 Display Question Number : Yes Is Question Mandatory : No

Which of the following is relatively strong Lewis acid?

Options :

1. ✖ BF_3

2. ✖ BCl_3

3. ✖ BBr_3

4. ✔ BI_3

Question Number : 86 Question Id : 47720318714 Display Question Number : Yes Is Question Mandatory : No

The decrease in electrical conductivity of metals with increase in temperature is due to increase in

Options :

1. ✖ the velocity of electrons

2. ✔ the resistance of the metal

3. ✖ the number of electrons

4. ✖ the number of metal atoms

Question Number : 87 Question Id : 47720318715 Display Question Number : Yes Is Question Mandatory : No

In the electrolytic cell, flow of electrons is from:

Options :

1. ✖ Cathode to anode in the solution

2. ✖ Cathode to anode through external circuit

3. ✔ Anode to cathode through external circuit

4. ✖ Anode to cathode in the solution

Question Number : 88 Question Id : 47720318716 Display Question Number : Yes Is Question Mandatory : No

The product of electrolysis of aqueous NaCl solution are

Options :

1. ✖ Na at cathode and Cl_2 at anode

2. ✔ H_2 at cathode and Cl_2 at anode

3. ✖ H_2 at cathode and O_2 at anode

4. ✖ Na at cathode and O_2 at anode

Question Number : 89 Question Id : 47720318717 Display Question Number : Yes Is Question Mandatory : No

When zinc piece is kept in $CuSO_4$ solution, copper get precipitated because

Options :

1. ✖ Standard reduction potential of zinc is more than copper

2. ✔ Standard reduction potential of zinc is less than copper

3. ✖ Atomic number of zinc is larger than copper

4. ✖ Atomic number of zinc is lower than copper

Question Number : 90 Question Id : 47720318718 Display Question Number : Yes Is Question Mandatory : No

Hardness of water is expressed in terms of ------- equivalents.

Options :

1. ✔ $CaCO_3$

2. ✖ $MgCO_3$

3. ✖ Na_2CO_3

4. ✖ K_2CO_3

Question Number : 91 Question Id : 47720318719 Display Question Number : Yes Is Question Mandatory : No

Anion exchange resin is regenerated by using

Options :

1. ✖ dil NaCl

2. ✖ dil HCl

3. ✔ dil NaOH

4. ✖ dil KCl

Question Number : 92 Question Id : 47720318720 Display Question Number : Yes Is Question Mandatory : No

Which of the following is responsible for temporary hardness?

Options :

1. ✖ $MgCl_2$

2. ✖ $CaSO_4$

3. ✖ $MgSO_4$

4. ✔ $Mg(HCO_3)_2$

Question Number : 93 Question Id : 47720318721 Display Question Number : Yes Is Question Mandatory : No

Corrosion is an example of ---------

Options :

1. ✔ Oxidation

2. ✖ Reduction

3. ✖ Electrolysis

4. ✖ Hydrolysis

Question Number : 94 Question Id : 47720318722 Display Question Number : Yes Is Question Mandatory : No

In electrochemical corrosion, if the formed corrosion product is insoluble in the medium then the corrosion rate further ---------

Options :

1. ✖ Increases

2. ✔ Decreases

3. ✖ Partially increases

4. ✖ No change

Question Number : 95 Question Id : 47720318723 Display Question Number : Yes Is Question Mandatory : No

Which of the following is an example of co-polymer ?

Options :

1. ✖ PVC

2. ✖ Teflon

3. ✖ Polythene

4. ✔ Buna-S rubber

Question Number : 96 Question Id : 47720318724 Display Question Number : Yes Is Question Mandatory : No

Which of the following polymer contains nitrogen atoms ?

Options :

1. ✖ PVC

2. ✖ Bakelite

3. ✔ Nylon

4. ✖ Teflon

Question Number : 97 Question Id : 47720318725 Display Question Number : Yes Is Question Mandatory : No

Isoprene is monomer of

Options :

1. ✖ Teflon

2. ✖ Nylon

3. ✔ Natural rubber

4. ✖ PVC

Question Number : 98 Question Id : 47720318726 Display Question Number : Yes Is Question Mandatory : No

The only liquid fuel in nature is

Options :

1. ✖ Kerosene

2. ✖ Diesel

3. ✖ Petrol

4. ✔ Petroleum

Question Number : 99 Question Id : 47720318727 Display Question Number : Yes Is Question Mandatory : No

The medium which reacts with pollutant is called

Options :

1. ✔ Sink

2. ✖ Receptor

3. ✖ Speciation

4. ✖ Contaminant

Question Number : 100 Question Id : 47720318728 Display Question Number : Yes Is Question Mandatory : No

Which of the following is used in the estimation of Chemical Oxygen Demand (COD) ?

Options :

1. ✖ Methyl orange

2. ✔ $K_2Cr_2O_7 + 50\% H_2SO_4$

3. ✖ $CaOCl_2 + 50\% H_2SO_4$

4. ✖ Alum +CaO

Civil Engineering

Section Id :	477203369
Section Number :	4
Mandatory or Optional :	Mandatory
Number of Questions :	100
Section Marks :	100
Enable Mark as Answered Mark for Review and Clear Response :	Yes

Question Number : 101 Question Id : 47720318729 Display Question Number : Yes Is Question Mandatory : No

The ability of a material to absorb a large amount of energy is

Options :

1. ✖ Resilience

2. ✔ Toughness

3. ✖ Ductility

4. ✖ Hardness

Question Number : 102 Question Id : 47720318730 Display Question Number : Yes Is Question Mandatory : No

The true characteristic yield stress for mild steel is considered as

Options :

1. ✔ Lower yield stress

2. ✖ Upper yield stress

3. ✖ Proof stress

4. ✖ Ultimate stress

Question Number : 103 Question Id : 47720318731 Display Question Number : Yes Is Question Mandatory : No

The ratio of deformation of a bar having self weight of P when subjected to a direct axial load P to the deformation due to self weight of P is

Options :

1. ✖ 0.5

2. ✖ 1.5

3. ✖ 2.0

4. ✔ 3.0

Question Number : 104 Question Id : 47720318732 Display Question Number : Yes Is Question Mandatory : No

For a material, if the bulk modulus is equal to its shear modulus, then the poisson's ratio is

Options :

1. ✔ 0.125

2. ✖ 0.25

3. ✖ 0.33

4. ✖ 0.50

Question Number : 105 Question Id : 47720318733 Display Question Number : Yes Is Question Mandatory : No

A square bar of size 10 mm × 10 mm and length 200 mm has undergone 20 mm extension due to a tensile load of 20 kN.
The modulus of elasticity of the material is

Options :

1. ✖ $200\ kN/m^2$

2. ✔ $200 \times 10^4\ kN/m^2$

3. ✖ $200 \times 10^3\ N/m^2$

4. ✖ $200\ N/mm^2$

Question Number : 106 Question Id : 47720318734 Display Question Number : Yes Is Question Mandatory : No

At a point where shear force changes its sign, the

Options :

1. ✖ deflection is maximum

2. ✔ bending moment is maximum

3. ✖ bending moment is minimum

4. ✖ slope is maximum

Question Number : 107 Question Id : 47720318735 Display Question Number : Yes Is Question Mandatory : No

A simply supported beam of span L is subjected to a concentrated load of P acting at a distance of $L/4$ from the left end support, the bending moment under the load is

Options :

1. ✖ $\frac{PL}{4}$

2. ✖ $\frac{3PL}{4}$

3. ✖ $\frac{PL}{16}$

4. ✔ $\frac{3PL}{16}$

Question Number : 108 Question Id : 47720318736 Display Question Number : Yes Is Question Mandatory : No

A cantilever AB of length 4 m is fixed at A and free at B, is subjected to a uniformly distributed load of 24 kN/m for a length of 2 m from the free end. The maximum bending moment is

Options :

1. ✖ 48 kNm

2. ✖ 96 kNm

3. ✔ 144 kNm

4. ✖ 192 kNm

Question Number : 109 Question Id : 47720318737 Display Question Number : Yes Is Question Mandatory : No

A fixed beam of span L is subjected to a concentrated load of W at midspan. The number of points of contraflexure for the beam is

Options :

1. ✖ 0

2. ✖ 1

3. ✔ 2

4. ✖ 3

Question Number : 110 Question Id : 47720318738 Display Question Number : Yes Is Question Mandatory : No

A beam ABC of length 8 m is hinged at left end A, free at right end C and roller support at B such that BC is equal to 2 m.

If it is subjected to a concentrated load of 60 kN at the free end C, the reaction of the support A is

Options :

1. ✖ 20 kN upwards

2. ✔ 20 kN downwards

3. ✖ 30 kN upwards

4. ✖ 30 kN downwards

Question Number : 111 Question Id : 47720318739 Display Question Number : Yes Is Question Mandatory : No

The curvature of a beam subjected to transverse loading is equal to

Options :

1. ✔ $\frac{M}{EI}$

2. ✖ $\frac{EI}{M}$

3. ✖ $\frac{EM}{I}$

4. ✖ $\frac{MI}{E}$

Question Number : 112 Question Id : 47720318740 Display Question Number : Yes Is Question Mandatory : No

If the maximum bending stress in a cantilever beam of square section 100 mm × 100 mm and span 2 m is limited to 12 N/mm^2,

the safe uniformly distributed load acting throughout the span is

Options :

1. ✔ 1 kN/m

2. ✖ 0.5 kN/m

3. ✖ 0.5×10^6 kN/m

4. ✖ 1×10^6 kN/m

Question Number : 113 Question Id : 47720318741 Display Question Number : Yes Is Question Mandatory : No

A rectangular beam of width 100 mm and 200 mm depth is subjected to a shear force of 40 kN.

The maximum shear stress induced in the beam is

Options :

1. ✖ $1.0\ N/mm^2$

2. ✖ $2.0\ N/mm^2$

3. ✔ $3.0\ N/mm^2$

4. ✖ $4.0\ N/mm^2$

Question Number : 114 Question Id : 47720318742 Display Question Number : Yes Is Question Mandatory : No

For a beam of circular cross section of diameter d and length L, the ratio of average shear stress to the maximum shear stress is

Options :

1. ✖ $\frac{2}{3}$

2. ✖ $\frac{3}{2}$

3. ✖ $\frac{4}{3}$

4. ✔ $\frac{3}{4}$

Question Number : 115 Question Id : 47720318743 Display Question Number : Yes Is Question Mandatory : No

The section modulus for a circular cross section of radius R is

Options :

1. ✖ $\frac{\pi R^3}{2}$

2. ✔ $\frac{\pi R^3}{4}$

3. ✖ $\frac{\pi R^3}{8}$

4. ✖ $\frac{\pi R^3}{32}$

Question Number : 116 Question Id : 47720318744 Display Question Number : Yes Is Question Mandatory : No

For a simply supported beam having T-section subjected to transverse loading, the maximum bending stress will occur at the

Options :

1. ✔ bottom of the section

2. ✖ top of the section

3. ✖ mid depth of section

4. ✖ centre of gravity of the section

Question Number : 117 Question Id : 47720318745 Display Question Number : Yes Is Question Mandatory : No

Twisting moment in a beam occurs when a concentrated load acting at a point

Options :

1. ✖ on its longitudinal axis

2. ✖ away from transverse direction

3. ✖ in transverse direction

4. ✔ away from the longitudinal axis

Question Number : 118 Question Id : 47720318746 Display Question Number : Yes Is Question Mandatory : No

If a shaft of diameter D is subjected to twisting moment T, the maximum normal stress induced in the cross section is

Options :

1. ✖ $\frac{16T}{\pi D^3}$

2. ✖ $\frac{32T}{\pi D^3}$

3. ✖ $\frac{64T}{\pi D^3}$

4. ✔ zero

Question Number : 119 Question Id : 47720318747 Display Question Number : Yes Is Question Mandatory : No

If a shaft transmits 1000 kN of power at a rotational speed of 100 radians/sec, then the torque transmitted is

Options :

1. ✖ 100.0

2. ✔ 10.0

3. ✖ 1.0

4. ✖ 0.1

Question Number : 120 Question Id : 47720318748 Display Question Number : Yes Is Question Mandatory : No

The polar moment of inertia is the

Options :

1. ✖ product of inertia

2. ✖ moment of inertia to extreme fibre distance

3. ✖ moment of inertia to least radius of gyration

4. ✔ moment of inertia about the axis

Question Number : 121 Question Id : 47720318749 Display Question Number : Yes Is Question Mandatory : No

The term $EI\frac{d^4y}{dx^4}$ for beam subjected to transverse loading refers to

Options :

1. ✔ Rate of loading

2. ✖ Shear force

3. ✖ Slope

4. ✖ Deflection

Question Number : 122 Question Id : 47720318750 Display Question Number : Yes Is Question Mandatory : No

For a cantilever beam, the ratio of maximum deflection when a concentrated load of W acting at the free end to a total uniformly distributed load of W acting over the span is

Options :

1. ✖ $\frac{5}{8}$

2. ✖

$\frac{8}{5}$

3. ✔ $\frac{8}{3}$

4. ✖ $\frac{3}{8}$

Question Number : 123 Question Id : 47720318751 Display Question Number : Yes Is Question Mandatory : No

A simply supported beam of span L is subjected to a uniformly distributed load of w/m acting over the left half of the span.

The deflection at midspan is

Options :

1. ✖ $\frac{5}{384}.\frac{wl^4}{EI}$

2. ✔ $\frac{5}{768}.\frac{wl^4}{EI}$

3. ✖ $\frac{3}{48}.\frac{wl^4}{EI}$

4. ✖ $\frac{1}{48}.\frac{wl^4}{EI}$

Question Number : 124 Question Id : 47720318752 Display Question Number : Yes Is Question

Mandatory : No

Mohr's theorem for beams is used for computing the

Options :

1. ✖ Shear force and Bending moment

2. ✖ Slope and Shear force

3. ✖ Deflection and Bending moment

4. ✔ Slope and deflection

Question Number : 125 Question Id : 47720318753 Display Question Number : Yes Is Question Mandatory : No

A fixed beam AB of span 8 m is subjected to a concentrated load of 64 kN acting at a distance of 3 m from the left end A.

The fixed end moment of support A is

Options :

1. ✖ 45 kNm

2. ✔ 75 kNm

3. ✖ 90 kNm

4. ✖ 120 kNm

Question Number : 126 Question Id : 47720318754 Display Question Number : Yes Is Question Mandatory : No

A fixed beam AB of span L is subjected to a uniformly distributed load of w/m throughout the span.

The ratio of maximum positive bending moment at midspan to the maximum negative bending moment at the support is

Options :

1. ✖ 4.0

2. ✖ 2.0

3. ✖ 1.0

4. ✔ 0.5

Question Number : 127 Question Id : 47720318755 Display Question Number : Yes Is Question Mandatory : No

A cantilever beam of rectangular cross section is subjected to a load W at its free end. If the depth of the beam is doubled, the deflection of the free end as compared to original deflection will be

Options :

1. ✖ half

2. ✖ one-fourth

3. ✔ one eighth

4. ✖ Double

Question Number : 128 Question Id : 47720318756 Display Question Number : Yes Is Question Mandatory : No

A cantilever AB of span L is propped at B and subjected to a uniformly distributed load of w kN/m throughout the span.

The reaction of the prop support is

Options :

1. ✔ $\frac{3}{8}WL$

2. ✖ $\frac{5}{8}WL$

3. ✖ $\frac{5}{16}WL$

4. ✖ $\frac{11}{16}WL$

Question Number : 129 Question Id : 47720318757 Display Question Number : Yes Is Question Mandatory : No

The Euler's bucking load for a long column does not depend on the

Options :

1. ✖ End conditions

2. ✖ Cross sectional properties

3. ✔ Strength of the material of the column

4. ✖ Elastic property of material.

Question Number : 130 Question Id : 47720318758 Display Question Number : Yes Is Question Mandatory : No

As per Eulers formula, for a given cross sectional area, length, material and end conditions, the shape of the most efficient column is

Options :

1. ✖ Square

2. ✖ Solid circular

3. ✔ Hollow circular

4. ✖ I-section

Question Number : 131 Question Id : 47720318759 Display Question Number : Yes Is Question Mandatory : No

The ratio of a buckling load of a column fixed at one end and free at the other end to that of a column fixed at one end and hinged at the other end is

Options :

1. ✔ 0.5

2. ✖ 2.0

3. ✖ 4.0

4. ✖ 8.0

Question Number : 132 Question Id : 47720318760 Display Question Number : Yes Is Question Mandatory : No

The Euler's buckling load for a 4 m long steel column of uniform cross section hinged at both the ends is 10 kN.

The Euler's crippling load for a 2 m long steel column of the same cross sectional area hinged at both the ends will be

Options :

1. ✖ 2.5 kN

2. ✖ 4 kN

3. ✖ 25 kN

4. ✔ 40 kN

Question Number : 133 Question Id : 47720318761 Display Question Number : Yes Is Question Mandatory : No

The slenderness ratio of a 4 m column, hinged at both ends and having a circular cross section with 160 mm diameter is

Options :

1. ✖ 50

2. ✔ 100

3. ✖ 160

4. ✖ 200

Question Number : 134 Question Id : 47720318762 Display Question Number : Yes Is Question Mandatory : No

For the analysis of determinate truss using the method of joints, the number of equilibrium equations required at each joint is

Options :

1. ✖ 0

2. ✖ 1

3. ✔ 2

4. ✖ 3

Question Number : 135 Question Id : 47720318763 Display Question Number : Yes Is Question Mandatory : No

A right angled triangular truss ABC is hinged at A, roller support at B, such that the member AB is horizontal and the member AC is vertical. A load of 100 kN acting vertically at joint C. The force in the inclined member BC is

Options :

1. ✔ 0

2. ✖

50 kN

3. ✖ 70.7 kN

4. ✖ 141.4 kN

Question Number : 136 Question Id : 47720318764 Display Question Number : Yes Is Question Mandatory : No

In a statically determinate plane truss, the number of joints (j) and the number of members (m) are related by

Options :

1. ✖ $m = 2j - 1$

2. ✖ $m = 2j + 1$

3. ✖ $j = 2m - 3$

4. ✔ $m = 2j - 3$

Question Number : 137 Question Id : 47720318765 Display Question Number : Yes Is Question Mandatory : No

If a truss consists of 9 joints, 3 reaction components and 12 members, then it is a

Options :

1. ✖

Cantilever truss

2. ✖ Redundant truss

3. ✔ Deficient truss

4. ✖ Determinate truss

Question Number : 138 Question Id : 47720318766 Display Question Number : Yes Is Question Mandatory : No

For a masonry dam of width b, the location of the point of application of the resultant with respect to the centre line so as to avoid tension in any part of the section is

Options :

1. ✔ within $\frac{b}{6}$

2. ✖ outside $\frac{b}{6}$

3. ✖ within $\frac{b}{8}$

4. ✖ outside of $\frac{b}{8}$

Question Number : 139 Question Id : 47720318767 Display Question Number : Yes Is Question

Mandatory : No

If the angle of repose of the soil is 30^0, the coefficient of active earth pressure is

Options :

1. ✖ 0.25

2. ✔ 0.33

3. ✖ 0.5

4. ✖ 1.0

Question Number : 140 Question Id : 47720318768 Display Question Number : Yes Is Question Mandatory : No

For a retaining wall, if the total vertical load due to self weight is 600 kN, the horizontal earth pressure is 200 kN and the coefficient of friction between the soil and the retaining wall is 0.50, then the factor of safety against sliding is

Options :

1. ✖ 1.25

2. ✖ 1.4

3. ✔ 1.5

4. ✖ 2.0

Question Number : 141 Question Id : 47720318769 Display Question Number : Yes Is Question

Mandatory : No

A simply supported beam carries a working live load of 4 kN/m and dead load of 3 kN/m.
The design load for limit state of collapse is

Options :

1. ✖ 7 kN/m

2. ✖ 10.0 kN/m

3. ✔ 10.5 kN/m

4. ✖ 14 kN/m

Question Number : 142 Question Id : 47720318770 Display Question Number : Yes Is Question Mandatory : No

The characteristic strength of the concrete is

Options :

1. ✖ the same as the average cube strength

2. ✔ lower than the average cube strength

3. ✖ higher than the average cube strength

4. ✖ equal to 95% of the average cube strength

Question Number : 143 Question Id : 47720318771 Display Question Number : Yes Is Question Mandatory : No

In limit state method of design, the limiting depth of neutral axis for Fe 415 grade of steel is

Options :

1. ✖ $0.42\,d$

2. ✖ $0.46\,d$

3. ✔ $0.48\,d$

4. ✖ $0.53\,d$

Question Number : 144 Question Id : 47720318772 Display Question Number : Yes Is Question Mandatory : No

As per the limit state method of design, the strain distribution is assumed to be

Options :

1. ✔ Linear

2. ✖ Non Linear

3. ✖ Parabolic

4. ✖ Parabolic and rectangular

Question Number : 145 Question Id : 47720318773 Display Question Number : Yes Is Question Mandatory : No

Minimum tensile steel reinforcement in RCC Beam needs to be provided to

Options :

1. ✖ Arrest the crack width

2. ✔ Prevent sudden failure

3. ✖ Prevent surface main cracks

4. ✖ Control Excessive Deflection.

Question Number : 146 Question Id : 47720318774 Display Question Number : Yes Is Question Mandatory : No

In under reinforced concrete beam section,

Options :

1. ✔ the actual depth of neutral axis is less than the critical depth of neutral axis

2. ✖ concrete reaches the ultimate stress prior to steel reaching the ultimate stress

3. ✖ moment of resistance is more than that of balanced section

4. ✖ lever arm of the resisting couple is less than the balanced section

Question Number : 147 Question Id : 47720318775 Display Question Number : Yes Is Question Mandatory : No

A T- Beam behaves as a rectangular beam of width equal to the width of flange, if its neutral axis

Options :

1. ✖ remains in the web

2. ✔ remains within the flange

3. ✖ coincides with centre of T section.

4. ✖ coincides with the centroid of steel reinforcement.

Question Number : 148 Question Id : 47720318776 Display Question Number : Yes Is Question Mandatory : No

Diagonal tension reinforcement is provided in a beam as

Options :

1. ✖ longitudinal bars

2. ✖ helical reinforcement

3. ✖ anchorage reinforcement

4. ✔ bent-up bars

Question Number : 149 Question Id : 47720318777 Display Question Number : Yes Is Question Mandatory : No

In a two way slab, lifting of corners occur due to

Options :

1. ✖ resultant stress at the ends

2. ✖ resultant shear force at the ends

3. ✖ unbalanced moment on the slab

4. ✔ torsional moment in the slab

Question Number : 150 Question Id : 47720318778 Display Question Number : Yes Is Question Mandatory : No

A slab is considered as two way slab, if the

Options :

1. ✖ ratio of long span to short span is more than 2

2. ✔ ratio of long span to short span is less than 2

3. ✖ slab is unsupported at one edge only

4. ✖ slab is continuous over two opposite edges

Question Number : 151 Question Id : 47720318779 Display Question Number : Yes Is Question Mandatory : No

The maximum diameter of bar in a 200 mm thick concrete slab is

Options :

1. ✖ 12 mm

2. ✖ 16 mm

3. ✖ 20 mm

4. ✔ 25 mm

Question Number : 152 Question Id : 47720318780 Display Question Number : Yes Is Question Mandatory : No

The length of bar beyond the theoretical cut off point shall be

Options :

1. ✖ bond length

2. ✖ dowel length.

3. ✔ anchorage length

4. ✖ development length.

Question Number : 153 Question Id : 47720318781 Display Question Number : Yes Is Question Mandatory : No

The minimum tension reinforcement for Fe 500 steel in a beam of 250 mm width and 400 mm effective depth is

Options :

1. ✖ $120\ mm^2$

2. ✖ $150\ mm^2$

3. ✔ $170\ mm^2$

4. ✖ $200\ mm^2$

Question Number : 154 Question Id : 47720318782 Display Question Number : Yes Is Question Mandatory : No

In working stress method of design, the factor of safety for reinforcing steel is

Options :

1. ✖ 3.0

2. ✔ 1.78

3. ✖ 1.5

4. ✖ 1.15

Question Number : 155 Question Id : 47720318783 Display Question Number : Yes Is Question Mandatory : No

The modular ratio for M 20 grade of concrete is

Options :

1. ✖ 7

2. ✖ 9

3. ✔ 13

4. ✖ 19

Question Number : 156 Question Id : 47720318784 Display Question Number : Yes Is Question Mandatory : No

As compared to working stress method of design, limit state method takes concrete to

Options :

1. ✖ the same stress level

2. ✔ a higher stress level

3. ✖ a lower stress level

4. ✖ 1.5 times of the working stress

Question Number : 157 Question Id : 47720318785 Display Question Number : Yes Is Question Mandatory : No

In an axially loaded RCC column, the maximum strain in concrete is

Options :

1. ✔ 0.002

2. ✖ 0.003

3. ✖ 0.0035

4. ✖ 0.00035

Question Number : 158 Question Id : 47720318786 Display Question Number : Yes Is Question Mandatory : No

The minimum eccentricity considered for the design of RCC columns is

Options :

1. ✖ 5 mm

2. ✖ 15 mm

3. ✔ 20 mm

4. ✖ 25 mm

Question Number : 159 Question Id : 47720318787 Display Question Number : Yes Is Question

Mandatory : No

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

Options :

1. ✖ 0.5

2. ✖ 0.65

3. ✖ 0.75

4. ✔ 0.80

Question Number : 160 Question Id : 47720318788 Display Question Number : Yes Is Question Mandatory : No

According to IS: 456-2000, the factor of safety against overturning of a footing is not less than

Options :

1. ✖ 1.15

2. ✔ 1.4

3. ✖ 1.5

4. ✖ 2.0

Question Number : 161 Question Id : 47720318789 Display Question Number : Yes Is Question Mandatory : No

The basic principle of surveying is working from

Options :

1. ✔ whole to part

2. ✖ part to whole

3. ✖ lower to higher level

4. ✖ higher to lower level

Question Number : 162 Question Id : 47720318790 Display Question Number : Yes Is Question Mandatory : No

The example of an obstacle to ranging but not chaining is

Options :

1. ✖ Pond

2. ✖ River

3. ✔ Hill

4. ✖ Marshy land

Question Number : 163 Question Id : 47720318791 Display Question Number : Yes Is Question Mandatory : No

Agonic lines are the lines joining the points through

Options :

1. ✖ equal dip

2. ✖ equal bearing

3. ✔ zero declination

4. ✖ equal declination

Question Number : 164 Question Id : 47720318792 Display Question Number : Yes Is Question Mandatory : No

The magnetic bearing of a line AB is $S19^{0}40'E$. If the declination is $5^{0}40'W$, the true bearing of the line is

Options :

1. ✖ $S15^{0}00'E$

2. ✔ $S25^{0}20'E$

3. ✖ $S19^{0}40'E$

4. ✖ $S25^{0}40'W$

Question Number : 165 Question Id : 47720318793 Display Question Number : Yes Is Question Mandatory : No

Error due to inclination of line of collimation in levelling across a river can be eliminated by

Options :

1. ✖ Reversion

2. ✖ Setting up level in middle

3. ✖ Reciprocal ranging

4. ✔ Reciprocal levelling

Question Number : 166 Question Id : 47720318794 Display Question Number : Yes Is Question Mandatory : No

A relatively fixed point of known elevation is called

Options :

1. ✖ Datum point

2. ✖ Bench mark

3. ✖ Reference point

4. ✔ Reduced level

Question Number : 167 Question Id : 47720318795 Display Question Number : Yes Is Question Mandatory : No

The elevation of a bench mark is 100.00m. The back sight taken on a staff held vertically is 2.450 m.

If the foresight is taken at a point A is 2.300 m , then the RL of point A is

Options :

1. ✔ 100.150 m

2. ✖ 99.850 m

3. ✖ 95.250 m

4. ✖ 104.750 m

Question Number : 168 Question Id : 47720318796 Display Question Number : Yes Is Question Mandatory : No

The line of collimation of a theodolite is

Options :

1. ✖ parallel to axis of plate levels

2. ✔ perpendicular to vertical axis

3. ✖ parallel to horizontal axis

4. ✖ parallel to vertical axis

Question Number : 169 Question Id : 47720318797 Display Question Number : Yes Is Question

Mandatory : No

The correct sequence of temporary adjustment of a theodolite is

Options :

1. ✖ Levelling, Setting, Centering

2. ✖ Setting, Levelling, Centering

3. ✔ Setting, Centering, Levelling

4. ✖ Levelling, Centering , Setting

Question Number : 170 Question Id : 47720318798 Display Question Number : Yes Is Question Mandatory : No

In a closed traverse, if the sum of North latitudes exceeds the sum of South latitudes and the sum of East departures exceeds the sum of West departures, then the closing line will lie in

Options :

1. ✖ S-W quadrant

2. ✖ S-E quadrant

3. ✔ N-E quadrant

4. ✖ N-W quadrant

Question Number : 171 Question Id : 47720318799 Display Question Number : Yes Is Question Mandatory : No

A series of straight parallel and widely spaced contours represent

Options :

1. ✖ Steep surface

2. ✔ Flat surface

3. ✖ Curved surface

4. ✖ Pond

Question Number : 172 Question Id : 47720318800 Display Question Number : Yes Is Question Mandatory : No

The diaphragm of a stadia theodolite is normally fitted with two additional

Options :

1. ✔ Horizontal hairs

2. ✖ Vertical hairs

3. ✖ inclined hairs

4. ✖ Cross hairs

Question Number : 173 Question Id : 47720318801 Display Question Number : Yes Is Question Mandatory : No

Systematic errors in surveying are

Options :

1. ✖ always positive

2. ✖ always negative

3. ✖ compensating

4. ✔ cumulative

Question Number : 174 Question Id : 47720318802 Display Question Number : Yes Is Question Mandatory : No

The brain of a total station is

Options :

1. ✖ Track light

2. ✖ Microprocessor

3. ✔ Electronic notebook

4. ✖ On board software

Question Number : 175 Question Id : 47720318803 Display Question Number : Yes Is Question Mandatory : No

The linear and angular accuracy of a total station respectively are

Options :

1. ✖ 0.1 mm and 1”

2. ✔ 0.1 mm and 0.1”

3. ✖ 1 mm and 1”

4. ✖ 1 mm and 0.1”

Question Number : 176 Question Id : 47720318804 Display Question Number : Yes Is Question Mandatory : No

The unit Pascal-second (Pa-s) is corresponding to

Options :

1. ✖ Pressure Intensity

2. ✖ Surface Tension

3. ✔ Dynamic Viscosity

4. ✖ Kinematic Viscosity

Question Number : 177 Question Id : 47720318805 Display Question Number : Yes Is Question Mandatory : No

The equivalent pressure in metres of oil of specific gravity 0.8 corresponding to 40 m of water is

Options :

1. ✖ 32 m

2. ✔ 50 m

3. ✖ 60 m

4. ✖ 64 m

Question Number : 178 Question Id : 47720318806 Display Question Number : Yes Is Question Mandatory : No

The centre of pressure will coincide with the centroid, if the plane surface is

Options :

1. ✔ horizontal

2. ✖ vertical

3. ✖ inclined

4. ✖ partially submerged

Question Number : 179 Question Id : 47720318807 Display Question Number : Yes Is Question Mandatory : No

The flow conditions for satisfying the Laplace equation are

Options :

1. ✖ Rotational and satisfying the continuity equation

2. ✖ Rotational and not satisfying the continuity equation

3. ✔ Irrotational and satisfying the continuity equation

4. ✖ Irrotational and not satisfying the continuity equation

Question Number : 180 Question Id : 47720318808 Display Question Number : Yes Is Question Mandatory : No

The difference between the total head line and the hydraulic grade line represents the

Options :

1. ✖ Pressure head

2. ✔ Velocity head

3. ✖ Piezometric head

4. ✖ Elevation head

Question Number : 181 Question Id : 47720318809 Display Question Number : Yes Is Question Mandatory : No

The function of throat of a venturimeter is to

Options :

1. ✔ obtain high velocity

2. ✖ obtain high pressure

3. ✖ obtain accelerated flow

4. ✖ convert kinetic energy into pressure energy

Question Number : 182 Question Id : 47720318810 Display Question Number : Yes Is Question Mandatory : No

Minor loss due to sudden contraction is because of

Options :

1. ✖ cavitation

2. ✖ boundary friction

3. ✖ uniform flow contraction

4. ✔ expansion of flow after sudden contraction

Question Number : 183 Question Id : 47720318811 Display Question Number : Yes Is Question Mandatory : No

Loss of energy at the exit of a pipe is

Options :

1. ✖ $0.5\frac{V^2}{g}$

2. ✖ $0.5\frac{V^2}{2g}$

3. ✔ $\frac{V^2}{2g}$

4. ✖ $1.5\frac{V^2}{2g}$

Question Number : 184 Question Id : 47720318812 Display Question Number : Yes Is Question Mandatory : No

Equations governed by the motion of incompressible fluid of laminar flow are

Options :

1. ✖ Bernoulli's equation

2. ✖ Euler's equation

3. ✖ Hagen-Poiseuille equation

4. ✔ Navier stokes equation

Question Number : 185 Question Id : 47720318813 Display Question Number : Yes Is Question Mandatory : No

The ratio of maximum velocity to mean velocity of various flow in between fixed parallel plates is

Options :

1. ✖ $\frac{2}{3}$

2. ✖ $\frac{4}{3}$

3. ✔ $\frac{3}{2}$

4. ✖ 2

Question Number : 186 Question Id : 47720318814 Display Question Number : Yes Is Question Mandatory : No

For a best hydraulic channel section, cross section has

Options :

1. ✖

maximum wetted area

2. ✔ minimum wetted perimeter

3. ✖ maximum wetted perimeter

4. ✖ minimum surface coefficient

Question Number : 187 Question Id : 47720318815 Display Question Number : Yes Is Question Mandatory : No

For a hydraulically efficient rectangular section, the ratio of depth of section to the hydraulic radius is

Options :

1. ✔ 0.5

2. ✖ 1.0

3. ✖ 1.5

4. ✖ 2.0

Question Number : 188 Question Id : 47720318816 Display Question Number : Yes Is Question Mandatory : No

The rate of flow through a V-notch varies as

Options :

1. ✖ H

2. ✖ $\sqrt{H}$

3. ✖ $H^{3/2}$

4. ✔ $H^{5/2}$

Question Number : 189 Question Id : 47720318817 Display Question Number : Yes Is Question Mandatory : No

A pump is a device which converts

Options :

1. ✖ Kinetic energy to Mechanical energy

2. ✖ Hydraulic energy to Mechanical energy

3. ✖ Mechanical energy to Kinetic energy

4. ✔ Mechanical energy to Hydraulic energy

Question Number : 190 Question Id : 47720318818 Display Question Number : Yes Is Question Mandatory : No

A Pelton wheel is ideally suited for

Options :

1. ✖ High head and high discharge

2. ✔ High head and low discharge

3. ✖ Low head and low discharge

4. ✖ Low head and high discharge

Question Number : 191 Question Id : 47720318819 Display Question Number : Yes Is Question Mandatory : No

If the depth of water is 8.64 cm on a field over a base period of 100 days, then the duty is

Options :

1. ✔ 1000 hectares per cumec

2. ✖ 864 hectares per cumec

3. ✖ 100 hectares per cumec

4. ✖ 10 hectares per cumec

Question Number : 192 Question Id : 47720318820 Display Question Number : Yes Is Question

Mandatory : No

The most suitable method of irrigation for areas having low rainfall and strong winds is

Options :

1. ✖ Furrow irrigation

2. ✖ Sprinkler irrigation

3. ✔ Drip Irrigation

4. ✖ Contour farming

Question Number : 193 Question Id : 47720318821 Display Question Number : Yes Is Question Mandatory : No

The main function of a diversion head works of a canal from a river is

Options :

1. ✖ to remove silt

2. ✖ to store water

3. ✖ to control floods

4. ✔ to raise water level

Question Number : 194 Question Id : 47720318822 Display Question Number : Yes Is Question

Mandatory : No

The level upto which the reservoir shall be full of water is called

Options :

1. ✖ Surface level

2. ✔ Pool level

3. ✖ High level

4. ✖ Maximum level

Question Number : 195 Question Id : 47720318823 Display Question Number : Yes Is Question Mandatory : No

The axis of a gravity dam is the

Options :

1. ✖ line joining the mid points of the base

2. ✖ centreline of the top width of the dam

3. ✔ line of the crown of the dam on the upstream side

4. ✖ line of the crown of the dam on the downstream side

Question Number : 196 Question Id : 47720318824 Display Question Number : Yes Is Question Mandatory : No

The central core of the zoned embankment type earth dam

Options :

1. ✖ prevents piping

2. ✔ checks the seepage

3. ✖ distribute the load over large area

4. ✖ gives stability to the central impervious fill

Question Number : 197 Question Id : 47720318825 Display Question Number : Yes Is Question Mandatory : No

When the reservoir is full, the maximum compressive stress induced in a gravity dam is

Options :

1. ✔ at the toe

2. ✖ At the level

3. ✖ within the middle third of the base

4. ✖ at the centre of the base

Question Number : 198 Question Id : 47720318826 Display Question Number : Yes Is Question Mandatory : No

The liquid form of precipitation comes down to earth is called

Options :

1. ✖ Cloud

2. ✖ Snow

3. ✔ Rain

4. ✖ Water vapour

Question Number : 199 Question Id : 47720318827 Display Question Number : Yes Is Question Mandatory : No

The rain gauge used in case of remote areas is

Options :

1. ✖ Optical rain gauge

2. ✖ Aucostic rain gauge

3. ✖ Reflective rain gauge

4. ✔ Tipping bucket

Question Number : 200 Question Id : 47720318828 Display Question Number : Yes Is Question Mandatory : No

The device used in front of head regulator for silt removal is

Options :

1. ✔ Silt excluder

2. ✖ Silt ejector

3. ✖ Wier

4. ✖ Barrage