CAREERS 360

PREPARATION Series

TS ECET 2025

CIV - Civil Engineering Question Paper

If $A = \begin{pmatrix} 0 & 1 \\ -1 & 0 \end{pmatrix}$ and if $(aI + bA)^2 = A$, then $b^4 =$

Options :

1. ✖ 1

2. ✖ $\frac{1}{2}$

3. ✖ $-\frac{1}{4}$

4. ✔ $\frac{1}{4}$

Question Number : 2 Question Id : 5069615417 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $A = \begin{pmatrix} \cos\theta & \sin\theta & 0 \\ -\sin\theta & \cos\theta & 0 \\ 0 & 0 & 1 \end{pmatrix} = F(\theta)$, then $A^{-1} =$

Options :

1. ✖ $F(\theta)$

2. ✔

$F(-\theta)$

3. ✖ $-F(\theta)$

4. ✖ $-F(-\theta)$

Question Number : 3 Question Id : 5069615418 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If (x, y, z) is the solution of linear equations $x + y + z = 6$, $x - y + z = 2$, $2x + y - z = 1$, then $\frac{yz}{x} =$

Options :

1. ✖ $\frac{1}{6}$

2. ✖ $\frac{3}{2}$

3. ✔ 6

4. ✖ 3

Question Number : 4 Question Id : 5069615419 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If A and B are square matrices of order 3 with $|A| = 2, |B| = -4$, then $|2AB| =$

Options :

1. ✔ -64

2. ✖ 16

3. ✖ 64

4. ✖ -16

Question Number : 5 Question Id : 5069615420 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $log_{\sqrt{27}}(x) = \frac{8}{3}$, then $x =$

Options :

1. ✖ 10

2. ✖ 16

3. ✔ 81

4. ✖ 27

Question Number : 6 Question Id : 5069615421 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\frac{x^3}{(x-1)(x+2)} = Ax + B + \frac{C}{x-1} + \frac{D}{x+2}$, then $C + D =$

Options :

1. ✖ -3

2. ✔ 3

3. ✖ 2

4. ✖ 0

Question Number : 7 Question Id : 5069615422 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\frac{sin^2 33^o - sin^2 57^o}{sin\,21^o - cos\,21^o} =$$

Options :

1. ✖ $\frac{\sqrt{3}}{2}$

2. ✖ $\frac{1}{2}$

3. ✔ $\frac{1}{\sqrt{2}}$

4. ✖ 1

Question Number : 8 Question Id : 5069615423 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✔ -1

2. ✖

2

3. ✖ -2

4. ✖ 1

Question Number : 9 Question Id : 5069615424 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $2\,tan^{-1}\left(\frac{2}{3}\right) = tan^{-1}(k)$, then k =

Options :

1. ✖ $\frac{5}{12}$

2. ✖ $\frac{4}{3}$

3. ✔ $\frac{12}{5}$

4. ✖ $\frac{3}{4}$

Question Number : 10 Question Id : 5069615425 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $tan^{-1}\left(\frac{1-x}{1+x}\right) = \frac{1}{2}tan^{-1}(x), x > 0$, then $x =$

Options :

1. ✖

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

2. ✔ $\frac{1}{\sqrt{3}}$

3. ✖ $\frac{1}{2}$

4. ✖ 1

Question Number : 11 Question Id : 5069615426 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\cosh x = \frac{3}{2}$, then $\cosh 2x =$

Options :

1. ✖ $\frac{1}{3}$

2. ✔ $\frac{7}{2}$

3. ✖ $\frac{5}{2}$

4. ✖ $\frac{11}{3}$

Question Number : 12 Question Id : 5069615427 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\left(\frac{\sqrt{3}+i}{2}\right)^6+\left(\frac{\sqrt{3}-i}{2}\right)^6=$$

Options :

1. ✖ 3

2. ✖ -3

3. ✖ 2

4. ✔ -2

Question Number : 13 Question Id : 5069615428 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The distance between the lines $y=2x+4$ and $6x-3y=5$ is (in units)

Options :

1. ✖ $\frac{13}{2\sqrt{5}}$

2. ✔ $\frac{17}{3\sqrt{5}}$

3. ✖ $\frac{17}{2\sqrt{5}}$

4. ✖ $\frac{14}{3\sqrt{5}}$

Question Number : 14 Question Id : 5069615429 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the radius of the circle $x^2 + y^2 - 4x + 6y - k = 0$ is 4, then $k =$

Options :

1. ✔ 3

2. ✖ -3

3. ✖ 2

4. ✖ $\frac{1}{2}$

Question Number : 15 Question Id : 5069615430 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the angle between the lines $3x - 4y + 1 = 0$ and $ax + by - 7 = 0$ is 90°, then $3a - 4b =$

Options :

1. ✖ 12

2. ✖ -1

3. ✔ 0

4. ✖

Question Number : 16 Question Id : 5069615431 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The equation of the tangent to the circle $x^2 + y^2 - 6x + 4y - 12 = 0$ at $(-1,1)$ is

Options :

1. ✖ $4x + 3y + 1 = 0$

2. ✖ $2x - 3y + 5 = 0$

3. ✖ $2x + 3y - 1 = 0$

4. ✔ $4x - 3y + 7 = 0$

Question Number : 17 Question Id : 5069615432 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The eccentricity of the ellipse whose latus rectum is equal to half of its major axis is

Options :

1. ✖ $\sqrt{3}$

2. ✔ $\frac{1}{\sqrt{2}}$

3. ✖ $\sqrt{2}$

4. ✖ $\frac{1}{\sqrt{3}}$

Question Number : 18 Question Id : 5069615433 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\frac{d}{dx}\left(\sqrt{\sin(x^2)}\right) =$$

Options :

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

2. ✖ $\frac{x\cos(x^2)}{2\sqrt{\sin(x^2)}}$

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

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

Question Number : 19 Question Id : 5069615434 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\frac{d}{dx}\tan^{-1}\left(\frac{\sin x}{1+\cos x}\right) =$$

Options :

1. ✖ 2

2. ✖ 4

3. ✖ 1

4. ✔ $\frac{1}{2}$

Question Number : 20 Question Id : 5069615435 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $y^x = x^{\cos y}$, then $\frac{dy}{dx} =$

Options :

1. ✔ $\frac{y(\cos y - x \log y)}{x(x + y \sin y \log x)}$

2. ✖ $\frac{y(\cos y + x \log y)}{x(x + y \sin y \log x)}$

3. ✖ $\frac{y(\cos y - x \log y)}{x(x - y \sin y \log x)}$

4. ✖ $\frac{(\cos y - x \log y)}{(x + y \sin y \log x)}$

Question Number : 21 Question Id : 5069615436 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\lim_{x\to 3}\frac{x^2-x-6}{x^2+x-12}=$$

Options :

1. ✖ $\frac{1}{6}$

2. ✖ $\frac{2}{3}$

3. ✖ $\frac{3}{4}$

4. ✔ $\frac{5}{7}$

Question Number : 22 Question Id : 5069615437 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✖ $x + 9y - 2 = 0$

2. ✖ $x + 9y - 22 = 0$

3. ✔ $x + 9y - 20 = 0$

4. ✖ $x + 9y - 12 = 0$

Question Number : 23 Question Id : 5069615438 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The maximum value of $y = (x-1)^2 e^x$ is

Options :

1. ✔ $\frac{4}{e}$

2. ✖ $\frac{2}{e}$

3. ✖ $\frac{1}{e}$

4. ✖ $\frac{9}{e}$

Question Number : 24 Question Id : 5069615439 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✖ $8e^4$

2. ✖ $4e^4$

3. ✔ $9e^4$

4. ✖ $16e^4$

Question Number : 25 Question Id : 5069615440 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\text{If } u(x,y)=\text{Sin}^{-1}\left(\frac{x^4+y^4}{x^2+y^2}\right),\text{then } x\frac{\partial u}{\partial x}+y\frac{\partial u}{\partial y}=$$

Options :

1. ✖ $2\cot u$

2. ✔ $2\tan u$

3. ✖ $2\sin u$

4. ✖ $2\cos u$

Question Number : 26 Question Id : 5069615441 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\int \frac{1}{(1-\cos x)}dx=$$

Options :

1. ✔ $-\cot x-\operatorname{cosec} x+c$

2. ✖ $-\cot x+\operatorname{cosec} x+c$

3. ✖ $\cot x-\operatorname{cosec} x+c$

4. ✖ $-\tan x-\sec x+c$

Question Number : 27 Question Id : 5069615442 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\int_2^4 f(x)\,dx =$$

Options :

1. ✖ $\int_2^4 f(6+x)\,dx$

2. ✖ $\int_2^4 f(4-x)\,dx$

3. ✖ $\int_2^4 f(2-x)\,dx$

4. ✔ $\int_2^4 f(6-x)\,dx$

Question Number : 28 Question Id : 5069615443 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\int_{-1}^1 \sin \pi x\,dx =$$

Options :

1. ✖ $\frac{1}{\pi}$

2. ✖ $\frac{2}{\pi}$

3. ✔ 0

4. ✖ $-\frac{2}{\pi}$

Question Number : 29 Question Id : 5069615444 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\lim_{n\to\infty}\left[\frac{1}{n}+\frac{n^2}{(n+1)^3}+\frac{n^2}{(n+2)^3}+\ldots+\frac{1}{8n}\right]=$$

Options :

1. ✖ $\frac{1}{8}$

2. ✖ $\frac{1}{4}$

3. ✔ $\frac{3}{8}$

4. ✖ $\frac{1}{2}$

Question Number : 30 Question Id : 5069615445 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The area of the region bounded by the lines $x=1, x=4, y=4x$ and $y=x^2$ is

Options :

1. ✖ 2

2. ✖ 6

3. ✖ 16

4. ✔ 9

Question Number : 31 Question Id : 5069615446 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

According to Simpson's $\frac{1}{3}$ rule, the value of the integral $\int_1^3 \frac{1}{x} dx$ with $h = \frac{1}{2}$, is

Options :

1. ✖ 1.5

2. ✖ 0.5

3. ✔ 1.1

4. ✖ 2

Question Number : 32 Question Id : 5069615447 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The differential equation whose general solution is $y = Ax^2 + Bx$, where A and B are arbitrary constants is

Options :

1. ✖ $x^2y'' + 2xy' - 2y = 0$

2. ✔ $x^2y'' - 2xy' + 2y = 0$

3. ✖ $y'' - 2y' + 2y = 0$

4. ✖ $x^2y'' - 2xy' - 2y = 0$

Question Number : 33 Question Id : 5069615448 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The general solution of the differential equation $(e^x + 1)y\,dy + (y + 1)\,dx = 0$ is

Options :

1. ✖ $e^{x-y} = c(y + 1)(1 - e^x)$

2. ✔ $e^{x+y} = c(y + 1)(1 + e^x)$

3. ✖ $e^{2x-y} = c(y + 1)(1 - e^x)$

4. ✖ $e^{x+y} = cy(1 + e^x)$

Question Number : 34 Question Id : 5069615449 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the differential equation $(x^2 + y^2)dx + kxy\,dy = 0$ is exact, then k =

Options :

1. ✔ 2

2. ✖ 1

3. ✖ -1

4. ✖ -2

Question Number : 35 Question Id : 5069615450 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The general solution of the differential equation $\frac{dy}{dx} + y\,tan\,x = cos^2\,x$ is

Options :

1. ✖ $y\,cot\,x = tan\,x + c$

2. ✖ $y\,sec\,x = x\,sin\,x + c$

3. ✖ $x\,sec\,x = sin\,x + c$

4. ✔ $y\,sec\,x = sin\,x + c$

Question Number : 36 Question Id : 5069615451 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✖ $2x$

2. ✖ $x^2 + 2$

3. ✔ $x^2 + 1$

4. ✖ $x^2 - 1$

Question Number : 37 Question Id : 5069615452 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The general solution of the differential equation $6y'' - 5y' - 6y = 0$ is

Options :

1. ✖ $y = ae^{9x} + be^{4x}$

2. ✖ $y = ae^{-9x} + be^{-4x}$

3. ✔ $y = ae^{\frac{3x}{2}} + be^{\frac{-2x}{3}}$

4. ✖ $y = ae^{\frac{-3x}{2}} + be^{\frac{-2x}{3}}$

Question Number : 38 Question Id : 5069615453 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A particular integral of the differential equation $(4D^2 + 4D - 3)y = e^{3x}$ is

$\left(Here \;\; D \equiv \frac{d}{dx}\right)$

Options :

1. ✖ $\frac{1}{11}e^{3x}$

2. ✔ $\frac{1}{45}e^{3x}$

3. ✖ $\frac{1}{5}e^{3x}$

4. ✖ $\frac{1}{3}e^{3x}$

Question Number : 39 Question Id : 5069615454 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A particular integral of the differential equation $(D^2+4)y = 5(\cos 3x + \sin 3x)$ is

$\left(Here \quad D \equiv \frac{d}{dx}\right)$

Options :

1. ✖ $\cos 3x + \sin 3x$

2. ✖ $\cos 3x - \sin 3x$

3. ✔ $-\cos 3x - \sin 3x$

4. ✖ $\sin 3x - \cos 3x$

Question Number : 40 Question Id : 5069615455 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $L\left\{\int_0^t \cosh 3u\, du\right\} = f(s)$, then $f(4) =$

Options :

1. ✔ $\frac{1}{7}$

2. ✖ $\frac{1}{32}$

3. ✖ 0

4. ✖ $\frac{7}{32}$

Question Number : 41 Question Id : 5069615456 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Let $F(t) = \begin{cases} e^{t-1}, & t > 1 \\ 0, & t < 1 \end{cases}$. If $s > 1$ then $L\{F(t)\} =$

Options :

1. ✖ $\frac{1}{s-1}$

2. ✖ $\frac{e^{-1}}{s-1}$

3. ✔ $\frac{e^{-s}}{s-1}$

4. ✖

$$\frac{e^s}{s-1}$$

Question Number : 42 Question Id : 5069615457 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\int_0^\infty te^{-t}\sin t\,dt =$$

Options :

1. ✖ -1

2. ✔ $\frac{1}{2}$

3. ✖ 0

4. ✖ 2

Question Number : 43 Question Id : 5069615458 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$L^{-1}\left\{\frac{1}{s(s-1)}\right\}=$$

Options :

1. ✖ $1-e^t$

2. ✖ e^t+1

3. ✖

$e^{-t}-1$

4. ✔ $e^{t}-1$

Question Number : 44 Question Id : 5069615459 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $L^{-1}\left\{\frac{s+1}{s^2+2s+2}\right\} = e^{at}\cos b\,t$, then $a^2+b^2 =$

Options :

1. ✔ 2

2. ✖ 4

3. ✖ 0

4. ✖ 8

Question Number : 45 Question Id : 5069615460 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The convolution of the functions 1 and $\sin t$ is

Options :

1. ✔ $1-\cos t$

2. ✖ $1-\sin t$

3. ✖

$\cos t$

4. ✖ $1+\cos t$

Question Number : 46 Question Id : 5069615461 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The Laplace transform of the solution of the initial value problem $y''+9y=9u(t-3), y(0)=0, y'(0)=0$ (Here $u(t-3)$ is the unit step function) is

Options :

1. ✖ $\frac{9e^{3s}}{s\left(s^2-9\right)}$

2. ✖ $\frac{e^{-3s}}{s^2\left(s^2+9\right)}$

3. ✖ $\frac{9e^{-3s}}{\left(s^2+9\right)^2}$

4. ✔ $\frac{9e^{-3s}}{s\left(s^2+9\right)}$

Question Number : 47 Question Id : 5069615462 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$\int_{\frac{-\pi}{2}}^{\frac{3\pi}{2}} \cos^2 4x\, dx =$$

Options :

1. π ✔

2. 3π ✖

3. 2π ✖

4. $\frac{\pi}{2}$ ✖

Question Number : 48 Question Id : 5069615463 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The value of a_3 in the Fourier series expansion of the function

$$f(x)=\begin{cases}0\ , & -\pi < x \le 0\\ x\ , & 0 < x \le \pi\end{cases}$$

Options :

1. $\frac{-2}{\pi}$ ✖

2. $\frac{-2}{3\pi}$ ✖

3. $\frac{-2}{5\pi}$ ✖

4. ✔ $\frac{-2}{9\pi}$

Question Number : 49 Question Id : 5069615464 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The value of b_1 in the Fourier series expansion of $f(x) = x\sin x$ in $0 \le x \le 2\pi$ is

Options :

1. ✔ π

2. ✖ 2π

3. ✖ 3π

4. ✖ 4π

Question Number : 50 Question Id : 5069615465 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The period of the function $f(x) = \sin\left(\frac{\pi x}{3}\right)$ is

Options :

1. ✖ π

2. ✖ $\frac{\pi}{3}$

3. ✖ $\frac{\pi}{6}$

4. ✔ 6

Physics

Section Id :	506961107
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 :	506961128
Question Shuffling Allowed :	Yes

Question Number : 51 Question Id : 5069615466 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Velocity (v) of water waves depends on their Wavelength (λ), Density of Water (ρ) and acceleration due to gravity (g). By the method of dimensional analysis, the relation between these quantities is given by

Options :

1. ✖ v^2 is proportional to $(\rho\lambda g)$

2. ✖ v is proportional to $\lambda g/\sqrt{\rho}$

3. ✔ v^2 is proportional to (λg)

4. ✖ v is proportional to $(\rho\lambda g)$

Question Number : 52 Question Id : 5069615467 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The Force $\vec{F} = 2\hat{\imath} + 3\hat{\jmath} + 7\hat{k}$ newtons (N), acting on an object causes a displacement $\vec{S} = 2\hat{\imath} + 3\hat{\jmath} + 5\hat{k}$ meters (m). Then the work done is

Options :

1. ✖ 30 Nm

2. ✖ 40 Nm

3. ✔ 48 Nm

4. ✖ 25 Nm

Question Number : 53 Question Id : 5069615468 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$\vec{A} = \hat{\imath} + 2\hat{\jmath} + 3\hat{k}$ and $\vec{B} = 3\hat{\imath} + 2\hat{\jmath} + \hat{k}$ are the adjacent sides of a parallelogram respectively. The area of the Parallelogram is

Options :

1. ✖ $8\sqrt{2}$

2. ✔ $8\sqrt{3}$

3. ✖ $3\sqrt{8}$

4. ✖ $\sqrt{8}$

Question Number : 54 Question Id : 5069615469 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A block is placed on a rough floor and a horizontal force 'F' is applied on it. The force of friction 'f' by the floor on the block is measured for different values of 'F'. The graph between the 'f' and 'F' would be

Options :

1. ✗ The graph is a straight line of slope 45° for all 'F'

2. ✗ The graph is a straight line parallel to 'F' axis for all 'F'

3. ✓ The graph is a straight line of slope 45° for small values of 'F' and straight line parallel to 'F' axis for large 'F'

4. ✗ The graph is exponential with values of 'F'

Question Number : 55 Question Id : 5069615470 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Throughout the flight of a particle in projectile motion

Options :

1. ✓ The horizontal component of velocity is constant

2. ✗ The vertical component of velocity is constant

3. ✗ The horizontal component of velocity decreases

4. ✖ The horizontal component of velocity is zero

Question Number : 56 Question Id : 5069615471 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A motor cyclist driving with a speed of 0.6 km/minute goes over a turn of radius of curvature 10 m. His slope with vertical in degrees (take g =10 m /sec^2).

Options :

1. ✖ 0°

2. ✖ 30°

3. ✔ 45°

4. ✖ 60°

Question Number : 57 Question Id : 5069615472 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Two wires of lengths in the ratio 2:3 taken from same material and having the same mass are stretched by same force. Then their elongations are in the ratio of

Options :

1. ✖ 2:3

2. ✖ 3:2

3. ✖ 1:2

4. ✔

4:9

Question Number : 58 Question Id : 5069615473 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following statements is wrong?

Options :

1. ✖ Surface Tension of a liquid decreases with increase of temperature

2. ✖ Surface Tension of a liquid increases or decreases depending on the type of impurities added to the liquid

3. ✔ Angle of Contact depends on the inclination of the solid rod placed in the liquid

4. ✖ A drop of oil placed on the surface of water will spread as a thin layer

Question Number : 59 Question Id : 5069615474 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A streamline flow is maintained across the two capillary tubes A and B connected in series. The length of B is twice that of A and the radius of B is half that of A. The pressure across A is P. The pressure across B is

Options :

1. ✖ 4P

2. ✖ 16P

3. ✔ 32P

4. ✖ P/32

Question Number : 60 Question Id : 5069615475 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A body of mass 0.1 kg is thrown vertically upward. At a certain point above the ground, the Potential energy and Kinetic energy of the body are 3.7 J and 6.3 J. The maximum height it reaches is ($g=10m/s^2$)

Options :

1. ✔ 10 m

2. ✖ 4 m

3. ✖ 100 m

4. ✖ 0.7 m

Question Number : 61 Question Id : 5069615476 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Two containers of volumes $20m^3$ and $30m^3$ have gases at Pressures of 40 MPa and 50 MPa. The two containers are connected by a very narrow pipe of negligible volume and the gases are allowed to intermingle. If the temperature remains constant, the final pressure in MPa is

Options :

1. ✔ 46

2. ✖ 40

3. ✖ 50

4. ✖

30

Question Number : 62 Question Id : 5069615477 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

During an adiabatic process, a mono atomic gas at 27°C is compressed suddenly to 1/8 of its original volume. Then the Final temperature in °C is (The ratio of the two specific heats of gases = 5/3)

Options :

1. ✖ 1160

2. ✖ 887

3. ✔ 927

4. ✖ 88

Question Number : 63 Question Id : 5069615478 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The time period of a simple pendulum is 3 sec. Its length is made 4 times. Then its time period is

Options :

1. ✖ 3 sec

2. ✖ 4 sec

3. ✔ 6 sec

4. ✖ 1.5 sec

Question Number : 64 Question Id : 5069615479 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A particle executes Simple Harmonic Motion with an amplitude of 5 cm. When the particle is at 4 cm from the mean position, the magnitude of its velocity in SI units is equal to that of its acceleration. Then, its periodic time in seconds is

Options :

1. ✔ $8\pi/3$

2. ✖ $4\pi/3$

3. ✖ $3\pi/8$

4. ✖ $7\pi/3$

Question Number : 65 Question Id : 5069615480 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The two equations of Simple Harmonic Motions are $Y_1 = 12\ \mathrm{Sin}(50t + \pi/2)$ and $Y_2 = 12\ \mathrm{Sin}(50t + \pi/3)$. The phase difference between two motions is

Options :

1. ✖ $\pi/2$

2. ✖ $\pi/3$

3. ✔ $\pi/6$

4. ✖ $\pi/8$

Question Number : 66 Question Id : 5069615481 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Multiple reflections leading to persistence of sound in an auditorium are

Options :

1. ✖ beats

2. ✖ echo

3. ✔ reverberation

4. ✖ stationary waves

Question Number : 67 Question Id : 5069615482 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Two sources S_1 and S_2 are moving with certain velocities. The apparent frequencies observed by a stationary observer are double and half of their original frequencies respectively. If the velocity of sound is **v** and velocity of wind is zero, then the velocities of two sources respectively are

Options :

1. ✖ **v**/2 and 2**v**

2. ✖ **v** and **v**/2

3. ✖ 3**v**/2 and 2**v**

4. ✔ **v**/2 and **v**

Question Number : 68 Question Id : 5069615483 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The Moment of couple acting on a bar magnet kept at an angle 30° to the direction of uniform magnetic field of induction 2 Tesla is equal to

Options :

1. ✖ Pole Strength of the Magnet

2. ✖ Length of the Magnet

3. ✖ Magnetic Flux

4. ✔ Magnetic Moment of the Magnet

Question Number : 69 Question Id : 5069615484 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a Meter Bridge, R_1 and R_2 are the resistances connected in the left and right gaps respectively. The bridge is balanced at the balancing point of 60 cm from left. When a resistance of 30 Ω is connected in parallel to R_2, the balancing point shifted to 90 cm. The values of R_1 and R_2 respectively are (in Ω)

Options :

1. ✖ 30 and 50

2. ✖ 200 and 350

3. ✔ 225 and 150

4. ✖ 100 and 75

Question Number : 70 Question Id : 5069615485 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

When 220 V AC is applied across a step-up transformer, it draws a current of 3A in the secondary. If the number of turns in the primary coil of the transformer is 100 and that of secondary coil is 2000. The output power of the transformer is

Options :

1. ✖ 8800 W

2. ✔ 13200 W

3. ✖ 4400 W

4. ✖ 2200 W

Question Number : 71 Question Id : 5069615486 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A photon of frequency υ is incident on a photosensitive metal surface whose threshold frequency is υ_o. The kinetic energy of emitted photo electron is

Options :

1. ✖ $h*\upsilon$

2. ✖ $h*\upsilon_o$

3. ✔ $h*(\upsilon - \upsilon_o)$

4. ✖ $h*(\upsilon + \upsilon_o)$

Question Number : 72 Question Id : 5069615487 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In LASER, the condition of Population Inversion mean

Options :

1. ✖ The number of atoms in the lower energy state are more than the higher energy state

2. ✔ The number of atoms in the higher energy state are more than the lower energy state

3. ✖ The number of atoms in the lower and higher energy states are same

4. ✖ The number of atoms in higher energy state are zero

Question Number : 73 Question Id : 5069615488 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a Graded Index Optical Fibre

Options :

1. ✖ The Refractive Index of the core remains constant and will be greater than that of the cladding

2. ✖ The Refractive Index of the core remains constant and will be less than that of the cladding

3. ✖ The Refractive Indices of both core and cladding remain constant and are equal

4. ✔ The Refractive Index of the core varies with maximum at the centre and decreases as the radial distance increases from the axis of the core

Question Number : 74 Question Id : 5069615489 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following statements is correct, if n_e and n_h are the concentrations of the Electrons and Holes respectively

Options :

1. ✔ In an intrinsic semiconductor, $n_e = n_h$ and both these charge carriers contribute to current equally

2. ✖ In p-type semiconductor, $n_e > n_h$ and the current due to electrons is more than that of holes

3. ✖ In n-type semiconductor, $n_p > n_e$ and current due to holes is more than that of elecrons

4. ✖ In an extrinsic semiconductor, $n_e = n_h$ and both these charge carriers contribute to current equally

Question Number : 75 Question Id : 5069615490 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The semiconductors used for fabrication of visible LEDs have band gap

Options :

1. ✖ Close to 1.5 eV

2. ✖ Close to 1.1 eV

3. ✖ About 1.0 ev to 1.6 eV

4. ✔ About 1.8 eV to 3 eV

Chemistry

Section Id :	506961108
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 :	506961129
Question Shuffling Allowed :	Yes

Question Number : 76 Question Id : 5069615491 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

According to Aufbau principle, which orbital is filled immediately after each of the 3p, 4p, 4f and 5d?

Options :

1. ✖ 3d, 5s, 5d, 6p

2. ✖ 3d, 4d, 5d, 6p

3. ✔ 4s, 5s, 5d, 6p

4. ✖ 4s, 5s, 5d, 7s

Question Number : 77 Question Id : 5069615492 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which one of the following properties is not due to hydrogen bonding.

Options :

1. ✖

High boiling point of water

2. ✖ High viscosity of glycerol

3. ✖ Solubility of ammonia in water

4. ✔ Polar nature of halogen acid

Question Number : 78 Question Id : 5069615493 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$2Mg(s) + O_2(g) \rightarrow 2MgO(s)$

In above reaction equation, the oxidation state of magnesium is changed from

Options :

1. ✔ 0 to +2

2. ✖ 0 to -2

3. ✖ +2 to -1

4. ✖ +2 to 0

Question Number : 79 Question Id : 5069615494 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

100 mL of ethanol, whose density is 1.2 $g.mL^{-1}$ is diluted to 1.0 L by addition of distilled water. Molarity of the resultant solution is

Options :

1. ✖ 1.60

2. ✔ 2.60

3. ✖ 0.46

4. ✖ 2.90

Question Number : 80 Question Id : 5069615495 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Among the below options, which is not a characteristic of a colloid

Options :

1. ✖ Particle size between 10 A° – 1000 A°

2. ✖ Heterogeneous

3. ✔ Can be separable by filtration

4. ✖ Diffuse slowly

Question Number : 81 Question Id : 5069615496 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The correct order of decreasing strength of acids is

Options :

1. ✖ $HClO_4 > H_2SO_4 > HNO_3 > HCl$

2. ✖ $H_2SO_4 > HClO_4 > HCl > HNO_3$

3. ✔ $HClO_4 > H_2SO_4 > HCl > HNO_3$

4. ✖ $HNO_3 > HCl > H_2SO_4 > HClO_4$

Question Number : 82 Question Id : 5069615497 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The solution which can resist change in its pH on the addition of an acid or a base is known as

Options :

1. ✖ Isotonic solution

2. ✖ Colloidal solution

3. ✖ Neutral solution

4. ✔ Buffer solution

Question Number : 83 Question Id : 5069615498 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The minimum level of a pollutant above which a healthy individual worker is adversely affected on exposure to it for eight hours in a day is called

Options :

1. ✖ Critical Limit Value

2. ✖ Toxic Limit Value

3. ✔ Threshold Limit Value

4. ✖ Dangerous Limit Value

Question Number : 84 Question Id : 5069615499 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The consequences of global warming are:
(A) Increase in average temperature of the earth
(B) Melting of Himalayan glaciers
(C) Increased Biochemical Oxygen Demand of natural water
(D) Eutrophication of water bodies
Choose the correct option.

Options :

1. ✖ A, D

2. ✖ A, C

3. ✔ A, B

4. ✖ A, B, C

Question Number : 85 Question Id : 5069615500 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The chemicals used for defluoridation of water by Nalgonda Technique are

Options :

1. ✖ CaO and $CaOCl_2$

2. ✔ Alum, CaO and $CaOCl_2$

3. ✖ CaH_2, NaOCl and Alum

4. ✖ NaOCl, NaH and Alum

Question Number : 86 Question Id : 5069615501 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The process which removes non-ionic, ionic, colloidal and organic matter in water is

Options :

1. ✖ Ion exchange process

2. ✖ Lime soda process

3. ✔ Reverse osmosis process

4. ✖ Zeolite process

Question Number : 87 Question Id : 5069615502 Question Type : MCQ Option Shuffling : Yes

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

The set of products that are formed during electrolysis of aqueous solution of KCl between platinum electrodes is

Options :

1. ✖ HCl and KOH

2. ✖ KOH and Cl_2

3. ✔ KOH, Cl_2 and H_2

4. ✖ K and Cl_2

Question Number : 88 Question Id : 5069615503 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

When same quantity of electricity is passed through aqueous $AgNO_3$ and H_2SO_4 solutions connected in series, 5.04×10^{-2} g of H_2 is liberated. What is the mass of silver (in grams) deposited?
(Eq. Wt. of hydrogen and silver is 1.008 and 108 respectively)

Options :

1. ✖ 54

2. ✖ 0.54

3. ✔ 5.4

4. ✖ 10.8

Question Number : 89 Question Id : 5069615504 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose the correct option that differentiates metals from non-metals

Options :

1. ✖ Metals form acidic oxides, whereas non-metals form basic oxides.

2. ✖ Metals have a tendency to gain electrons, whereas non-metals have a tendency to lose electrons.

3. ✔ Metals are generally good conductors of electricity, whereas non-metals are insulators.

4. ✖ All metals exist in a solid state at room temperature.

Question Number : 90 Question Id : 5069615505 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Nichrome is commonly used in heating elements because

Options :

1. ✖ It has high electrical conductivity

2. ✔ It has a high melting point and corrosion resistance

3. ✖ It is lightweight

4. ✖ It is brittle and hard

Question Number : 91 Question Id : 5069615506 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

_____ combinations is used for prevention of corrosion.

Options :

1. ✔ Phosphorous or Antimony

2. ✖ Phosphorous or Chlorine

3. ✖ Antimony or Nitrogen

4. ✖ Antimony or Sodium

Question Number : 92 Question Id : 5069615507 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The process of coating zinc metal over iron to improve corrosion resistance of iron is called

Options :

1. ✖ Electroplating

2. ✖ Annealing

3. ✔ Galvanizing

4. ✖ Tinning

Question Number : 93 Question Id : 5069615508 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

_____ is a cross linked polymer.

Options :

1. ✔ Bakelite

2. ✖ LDPE

3. ✖ Polystyrene

4. ✖ PVC

Question Number : 94 Question Id : 5069615509 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Identify the Biodegradable polymers from the following and choose the correct option.

(I) PVC (II) PHBV (III) Polypropylene (IV) Nylon-2-nylon-6

Options :

1. ✖ I and II

2. ✔ II and IV

3. ✖ I and IV

4. ✖ I, II and III

Question Number : 95 Question Id : 5069615510 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Calculate the amount of oxygen required for the complete combustion of 1 mole of Methane (CH_4).

Options :

1. ✖ 1 mole

2. ✔ 2 moles

3. ✖ 3 moles

4. ✖ 4 moles

Question Number : 96 Question Id : 5069615511 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

_____ represents the composition of water gas

Options :

1. ✔ $CO + H_2$

2. ✖ $CO_2 + H_2$

3. ✖ $CO + CH_4$

4. ✖ $CO_2 + CH_4$

Question Number : 97 Question Id : 5069615512 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Match the following and choose the correct option.

List – I	List – II
a) Hydrogen electrode	(i) $Pt \mid Fe^{3+}, Fe^{2+}$
b) Standard hydrogen electrode	(ii) $Fe \mid Fe^{2+}$
c) Metal-metal ion electrode	(iii) pH measurement
d) Glass electrode	(iv) Pt, H_2 (2 bar) $\mid H^+$ (0.1M)
	(v) Pt, H_2 (1 bar) $\mid H^+$ (1.0M)
	(vi) Oxidation electrode

Options :

1. ✖ a – iii, b – v, c – i, d – vi

2. ✖ a – v, b – iv, c – ii, d - iii

3. ✖ a – v, b – iii, c –i, d – vi

4. ✔ a – iv, b – v, c – ii, d- iii

Question Number : 98 Question Id : 5069615513 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The cell reaction of the galvanic cell
$Cu(s) \mid Cu^{2+}(aq.) \parallel Ag^+(aq.) \mid Ag(s)$ is

Options :

1. ✖ $Ag + Cu^{2+} \rightarrow Ag^+ + Cu^+$

2. ✖ $Ag + Cu^{2+} \rightarrow Ag^+ + Cu$

3. ✔ $Cu + 2Ag^+ \rightarrow Cu^{2+} + 2Ag$

4. ✖ $Cu^{2+} + 2Ag \rightarrow Cu^{2+} + 2Ag^{+}$

Question Number : 99 Question Id : 5069615514 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

_____ is used to reduce water pollution.

Options :

1. ✖ Neem

2. ✖ Watermelon

3. ✔ Water hyacinth

4. ✖ People

Question Number : 100 Question Id : 5069615515 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following can cause soil pollution

Options :

1. ✔ DDT

2. ✖ CO_2

3. ✖ NO_2

4. ✖ Nitrogen

CIVIL ENGINEERING

Section Id :	506961109
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 :	506961130
Question Shuffling Allowed :	Yes

Question Number : 101 Question Id : 5069615516 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

When two forces each equal to P act at an angle of 90^0 to each other, then the resultant force will be

Options :

1. ✔ $P\sqrt{2}$

2. ✖ P

3. ✖ $P/\sqrt{2}$

4. ✖ $2P$

Question Number : 102 Question Id : 5069615517 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which type of support allows both vertical and horizontal movements but resists rotation?

Options :

1. ✔

Roller support

2. ✖ Fixed support

3. ✖ Hinged support

4. ✖ Free support

Question Number : 103 Question Id : 5069615518 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The centroid of a uniform semi-circular lamina lies at a distance of _____ from the flat edge (diameter).

Options :

1. ✔ $4r/3\pi$

2. ✖ $r/2$

3. ✖ $r/3\pi$

4. ✖ $2r/3\pi$

Question Number : 104 Question Id : 5069615519 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The moment of inertia of a rectangular lamina is minimum about its

Options :

1. ✔ Centroidal axis

2. ✖

Polar axis

3. ✖ Axis along the diagonal

4. ✖ Shorter axis

Question Number : 105 Question Id : 5069615520 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The ratio of polar moment of inertia of the shaft section to the radius of the shaft is called

Options :

1. ✖ Section Modulus

2. ✔ Polar Modulus

3. ✖ Young Modulus

4. ✖ Bulk Modulus

Question Number : 106 Question Id : 5069615521 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Moment of inertia of a square section (with side "a") about the base is

Options :

1. ✖ $a^4/3$

2. ✖ $a^4/4$

3. ✖ $a^4/6$

4. ✔ $a^4/12$

Question Number : 107 Question Id : 5069615522 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

How many independent elastic constants are required to define the stress-strain relationship for an isotropic material?

Options :

1. ✖ 1

2. ✖ 3

3. ✔ 2

4. ✖ 9

Question Number : 108 Question Id : 5069615523 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The property of a material enables it to be drawn into wires with the application of tensile force is

Options :

1. ✖ Plasticity

2. ✔ Ductility

3. ✖ Malleability

4. ✖

Question Number : 109 Question Id : 5069615524 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

According to Hooke's law of elasticity

Options :

1. ✖ Stress is not equal to strain within the proportionality limit

2. ✖ There is no correlation between stress and strain within the proportionality limit

3. ✖ Stress is inversely proportional to strain within the elastic limit

4. ✔ Stress is proportional to strain within the proportionality limit

Question Number : 110 Question Id : 5069615525 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Poisson's ratio for mild steel lies between

Options :

1. ✖ 0.20 to 0.25

2. ✔ 0.25 to 0.33

3. ✖ 0.35 to 0.40

4. ✖ 0.45 to 0.50

Question Number : 111 Question Id : 5069615526 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The parallel axis theorem is used to

Options :

1. ✖ find the moment of inertia about the centroidal axis

2. ✔ find the moment of inertia about any axis parallel to the centroidal axis

3. ✖ convert area units

4. ✖ calculate weight of a lamina

Question Number : 112 Question Id : 5069615527 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

When a uniformly distributed load is applied to a simply supported beam, the slope at the centre of the beam is

Options :

1. ✔ Zero

2. ✖ Maximum

3. ✖ Minimum

4. ✖ Positive

Question Number : 113 Question Id : 5069615528 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A rectangular beam of 100 mm wide and 250 mm deep is subjected to a maximum shear force of 50 kN. The maximum shear stress developed in the section is

Options :

1. ✖ $2\ N/mm^2$

2. ✔ $3\ N/mm^2$

3. ✖ $4\ N/mm^2$

4. ✖ $1.5\ N/mm^2$

Question Number : 114 Question Id : 5069615529 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a beam, the neutral axis of a section is an axis at which bending stress is

Options :

1. ✖ minimum

2. ✔ zero

3. ✖ maximum

4. ✖ infinity

Question Number : 115 Question Id : 5069615530 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The relationship between the radius of curvature R, bending moment M and flexural rigidity EI is given by

Options :

1. ✖ $R = \frac{M}{EI}$

2. ✖ $M = \frac{E}{IR}$

3. ✔ $M = \frac{EI}{R}$

4. ✖ $EI = \frac{R}{M}$

Question Number : 116 Question Id : 5069615531 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If a circular shaft is subjected to a torque 'T' and moment 'M', then the ratio of maximum bending stress and maximum shear stress is

Options :

1. ✖ M/(2T)

2. ✔ 2M/T

3. ✖ T/(2M)

4. ✖ 2T/M

Question Number : 117 Question Id : 5069615532 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

For a solid circular beam of 40 mm diameter, the section modulus is

Options :

1. ✖ $\pi \times 10^3$ mm^3

2. ✔ $2\pi \times 10^3$ mm^3

3. ✖ $4\pi \times 10^3$ mm^3

4. ✖ $8\pi \times 10^3$ mm^3

Question Number : 118 Question Id : 5069615533 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a beam of solid circular cross section, what is the ratio of maximum shear stress to the average shear stress?

Options :

1. ✖ 3/4

2. ✔ 4/3

3. ✖ 3/2

4. ✖ 2/3

Question Number : 119 Question Id : 5069615534 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A lever arm is 1.2 meters long, and a 15 N force is applied at an angle of 90° to the lever arm. What is the torque?

Options :

1. ✔ 18 Nm

2. ✖ 15 Nm

3. ✖ 10 Nm

4. ✖ 12 Nm

Question Number : 120 Question Id : 5069615535 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A column of length 'L' and flexural rigidity 'EI' is fixed at one end, free at another end. The Euler's crippling load is

Options :

1. ✖ $\frac{\pi^2 EI}{L^2}$

2. ✖ $\frac{2\pi^2 EI}{L^2}$

3. ✖ $\frac{3\pi^2 EI}{2L^2}$

4. ✔ $\frac{\pi^2 EI}{4L^2}$

Question Number : 121 Question Id : 5069615536 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The power transmitted by a rotating shaft in terms of torque (T) and speed in rpm (N) is given by

Options :

1. ✔ $2\pi TN/60$

2. ✖ $\pi TN/60$

3. ✖ $2\pi T/N$

4. ✖ $2\pi T/60$

Question Number : 122 Question Id : 5069615537 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Deflection at free end of a cantilever beam of span 'L 'subjected to a point load of 'W' at the free end, assuming EI to be constant, is

Options :

1. ✖ $WL^2/2EI$

2. ✖ $WL^3/2EI$

3. ✔ $WL^3/3EI$

4. ✖ $ML^3/6EI$

Question Number : 123 Question Id : 5069615538 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

According to Mohr's First Theorem, the change in slope between any two points on a beam is equal to

Options :

1. ✔ Area of the bending moment diagram between those points

2. ✖

Moment of the shear force diagram

3. ✖ Deflection at the midpoint

4. ✖ Maximum shear force in the beam

Question Number : 124 Question Id : 5069615539 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Effective length of a column of length 'L_e' with one end fixed and another end hinged is given by

Options :

1. ✖ $L_e = L$

2. ✖ $L_e = L/2$

3. ✔ $L_e = L/\sqrt{2}$

4. ✖ $L_e = 2L$

Question Number : 125 Question Id : 5069615540 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In the double integration method for deflection, the first integration gives

Options :

1. ✖ The shear force distribution

2. ✔ The slope of the beam

3. ✖ The deflection of the beam

4. ✖ The bending moment distribution

Question Number : 126 Question Id : 5069615541 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A balanced RC section is reinforced in tension only with Fe 415 grade steel. If 'd' is the effective depth, then the lever arm depth is

Options :

1. ✔ 0.80 d

2. ✖ 0.53 d

3. ✖ 0.48 d

4. ✖ 0.46 d

Question Number : 127 Question Id : 5069615542 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The ratio of modulus of elasticity of steel to the modulus of elasticity of M25 grade concrete is

Options :

1. ✖ 10

2. ✖ 4

3. ✖ 6

4. ✔ 8

Question Number : 128 Question Id : 5069615543 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Increasing (f_{ck}/f_y) ratio of a singly reinforced concrete beam decreases the

Options :

1. ✖ balanced percentage of steel

2. ✖ lever arm depth

3. ✔ neutral axis depth

4. ✖ moment of resistance

Question Number : 129 Question Id : 5069615544 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

An RC section having width 300 mm and effective depth 400 mm is reinforced with three numbers of 16 mm diameter bars in tension and two numbers of 12 mm diameter in compression. The percent of tension steel required is

Options :

1. ✔ 0.5%

2. ✖ 0.75%

3. ✖ 1.0%

4. ✖ 1.25%

Question Number : 130 Question Id : 5069615545 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In an RC beam, if the spacing of stirrups is equal to half the effective depth, then the shear capacity of the stirrups is _____. (Assume yield strength of stirrups as f_y and area of stirrups as A_{sv})

Options :

1. ✖ $0.87\ f_y\ A_{sv}$

2. ✔ $1.74\ f_y\ A_{sv}$

3. ✖ $2\ f_y\ A_{sv}$

4. ✖ $2.61\ f_y\ A_{sv}$

Question Number : 131 Question Id : 5069615546 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The total compressive force at the time of failure of a concrete beam section of width 'b' considering the partial safety factor of the material is

Options :

1. ✖ $0.3\ f_{ck}\ b$

2. ✖ $0.66\ f_{ck}\ b$

3. ✖ $0.54\ f_{ck}\ b$

4. ✔

$0.36\, f_{ck}\, b$

Question Number : 132 Question Id : 5069615547 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

An RC footing of size 2 x 3 m with effective depth of 400 mm is provided for a column 300 x 500 mm carrying an ultimate axial load of 1200 kN. The upward base pressure under the footing is _____ kN/m^2.

Options :

1. ✖ 50

2. ✖ 100

3. ✖ 150

4. ✔ 200

Question Number : 133 Question Id : 5069615548 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In the limit state design method of concrete structures, the recommended partial material safety factor (Υ_m) for steel according to IS: 456-2000 is

Options :

1. ✖ 1.5

2. ✔ 1.15

3. ✖ 1.00

4. ✖

0.87

Question Number : 134 Question Id : 5069615549 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following scale is largest?

Options :

1. ✖ 1 : 4,200

2. ✖ 1 : 42,000

3. ✖ 1 : 4,20,000

4. ✔ 1 : 420

Question Number : 135 Question Id : 5069615550 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following angles can be set out using optical square?

Options :

1. ✖ 45^0 only

2. ✖ 90^0 only

3. ✔ Both 45^0 and 90^0

4. ✖ Any angle

Question Number : 136 Question Id : 5069615551 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

_____ involves determining the elevations, locations and dimensions of both natural and man-made features such as hills, valleys, rivers, roads, buildings and vegetation.

Options :

1. ✖ City surveying

2. ✖ Location surveying

3. ✖ Cadastral surveying

4. ✔ Topographical surveying

Question Number : 137 Question Id : 5069615552 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The type of surveying in which curvature of the earth is taken into account.

Options :

1. ✔ Geodetic surveying

2. ✖ Plane surveying

3. ✖ Preliminary surveying

4. ✖ Topographical surveying

Question Number : 138 Question Id : 5069615553 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The whole circle bearing of a line is 120^0, its reduced bearing is

Options :

1. ✖ S 30° E

2. ✖ N 30° E

3. ✔ S 60° E

4. ✖ N 60° E

Question Number : 139 Question Id : 5069615554 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Back sight taken on benchmark of 100.00 m is 2.600 and foresight of a point is 2.500. What is the RL of this point?

Options :

1. ✖ 101.10 m

2. ✖ 99.10 m

3. ✖ 99.90 m

4. ✔ 100.10 m

Question Number : 140 Question Id : 5069615555 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The relation between radius of the curve and degree of curve, if the length of an arc or chord in a curve of 30 m is

Options :

1. ✖ $R = 1718.9 * D°$

2. ✖ $R = 573/D°$

3. ✔ $R = 1718.9/D°$

4. ✖ $R = 1146/D°$

Question Number : 141 Question Id : 5069615556 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The following is NOT a segment of Global Positioning System

Options :

1. ✖ Control segment

2. ✖ Space segment

3. ✖ User segment

4. ✔ GIS segment

Question Number : 142 Question Id : 5069615557 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Closed contours of decreasing values towards their centre represents a

Options :

1. ✖

Hill

2. ✖ Saddle

3. ✖ River bed

4. ✔ Depression

Question Number : 143 Question Id : 5069615558 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The value of additive constant lies in the range of

Options :

1. ✖ 0.1 to 0.2 m

2. ✔ 0.3 to 0.45 m

3. ✖ 0.2 to 0.3 m

4. ✖ 0.45 to 0.6 m

Question Number : 144 Question Id : 5069615559 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In the raster data model, features on the earth are represented as

Options :

1. ✔ cells

2. ✖ points

3. ✖ polygons

4. ✖ lines

Question Number : 145 Question Id : 5069615560 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose the correct set of combinations of total station

Options :

1. ✖ Theodolite, compass

2. ✖ Dumpy level, EDM

3. ✔ Electronic Theodolite, EDM

4. ✖ EDM and GPS

Question Number : 146 Question Id : 5069615561 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Laminar flow is characterized by

Options :

1. ✖ Chaotic fluid motion

2. ✔ Smooth parallel layered motion

3. ✖ High Reynolds number

4. ✖ Irregular eddies

Question Number : 147 Question Id : 5069615562 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which instrument measures pressure exerted by a column of fluid

Options :

1. ✖ Piezoelectric sensor

2. ✖ Barometer

3. ✔ Manometer

4. ✖ Bourdon gauge

Question Number : 148 Question Id : 5069615563 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

_____ is defined as mass per unit volume of a fluid

Options :

1. ✖ Specific weight

2. ✔ Density

3. ✖ Temperature gradient

4. ✖ Viscosity

Question Number : 149 Question Id : 5069615564 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

During the opening of valve, the flow of fluid is

Options :

1. ✖ Laminar

2. ✔ Unsteady

3. ✖ Uniform

4. ✖ Rotational

Question Number : 150 Question Id : 5069615565 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Absolute pressure is the sum of

Options :

1. ✖ Gauge pressure and vacuum pressure

2. ✖ Atmospheric pressure and vapor pressure

3. ✖ Hydrostatic pressure and dynamic pressure

4. ✔ Gauge pressure and Atmospheric pressure

Question Number : 151 Question Id : 5069615566 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Coefficient of contraction is the ratio of

Options :

1. ✖

Actual area of jet at vena contracta to the theoretical velocity

2. ✔ Area of jet at vena contracta to the area of orifice

3. ✖ Discharge through an orifice to the theoretical discharge

4. ✖ Loss of head in the orifice to the head of water available at the exit of the orifice

Question Number : 152 Question Id : 5069615567 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Discharge through a totally submerged orifice is directly proportional to

Options :

1. ✖ Difference in elevation of water surfaces

2. ✔ Square root of the difference in elevation of water surfaces

3. ✖ Cube root of the opening

4. ✖ Reciprocal of the area of the opening

Question Number : 153 Question Id : 5069615568 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The discharge over a rectangular notch is

Options :

1. ✖ $\frac{1}{3} * C_d * b * \sqrt{2gH}$

2. ✖ $\frac{1}{3} * C_d * b * \sqrt{2g} * H$

3. ✔ $\frac{2}{3} * C_d * b * \sqrt{2g} * H^{3/2}$

4. ✖ $\frac{2}{3} * C_d * b * \sqrt{2g} * H^2$

Question Number : 154 Question Id : 5069615569 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A weir, generally used as a spillway of a dam is

Options :

1. ✖ Submerged weir

2. ✖ Narrow crested weir

3. ✖ Broad crested weir

4. ✔ Ogee weir

Question Number : 155 Question Id : 5069615570 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The pressure at 3 m below the free surface of a liquid is noted as 13.72 kN/m^2. Determine the unit weight of the liquid

Options :

1. ✖ 0.46 kN/m^2

2. ✔

4.6 kN/m^3

3. ✖ 14 kN/m^3

4. ✖ 1.4 kN/m^3

Question Number : 156 Question Id : 5069615571 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Chezy's formula relates discharge to

Options :

1. ✖ Pressure gradient

2. ✔ Hydraulic radius and slope

3. ✖ Viscosity and density

4. ✖ Surface tension

Question Number : 157 Question Id : 5069615572 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The most economical trapezoidal channel section has

Options :

1. ✖ Maximum wetted perimeter

2. ✖ Maximum velocity

3. ✖ Maximum depth

4. ✔ Side slopes should be at 60^0 to horizontal

Question Number : 158 Question Id : 5069615573 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A Pelton wheel turbine is best suited for

Options :

1. ✖ Low head, high discharge

2. ✖ Medium head, medium discharge

3. ✔ High head and low discharge

4. ✖ Tidal energy

Question Number : 159 Question Id : 5069615574 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The accurate estimate of average rainfall in a particular catchment area can be obtained by

Options :

1. ✖ Arithmetic mean method

2. ✖ Thiessen polygon method

3. ✔ Isohyetal method

4. ✖ Normal ratio method

Question Number : 160 Question Id : 5069615575 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

An isohyet is a line joining the points of

Options :

1. ✖ Equal temperature

2. ✖ Equal humidity

3. ✔ Equal rainfall

4. ✖ Equal evaporation

Question Number : 161 Question Id : 5069615576 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The water stored in the reservoir below the minimum pool level is known as

Options :

1. ✖ Useful storage

2. ✔ Dead storage

3. ✖ Valley storage

4. ✖ Surcharge storage

Question Number : 162 Question Id : 5069615577 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The science which deals with occurrence, distribution and circulation of water is called

Options :

1. ✖ Hydrography

2. ✖ Hydrometry

3. ✔ Hydrology

4. ✖ Hydraulics

Question Number : 163 Question Id : 5069615578 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Identify the non-recording rain gauge from the following

Options :

1. ✖ Tipping bucket rain gauge

2. ✔ Symon's rain gauge

3. ✖ Weighting rain gauge

4. ✖ Floating type rain gauge

Question Number : 164 Question Id : 5069615579 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

For no tension to be developed in gravity dam, the eccentricity (e) should be

Options :

1. ✔ Less than b/6

2. ✖ Greater than b/6

3. ✖ Equal to b/2

4. ✖ Equal to b/4

Question Number : 165 Question Id : 5069615580 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Canal lining is essential to

Options :

1. ✔ Minimize the water losses

2. ✖ Minimize silting

3. ✖ Release water

4. ✖ reduce water level

Question Number : 166 Question Id : 5069615581 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If a canal has a cross-sectional area of 50 m^2 and an average seepage loss rate of 5 cm/day, calculate the seepage loss in m^3/day.

Options :

1. ✖ 0.25

2. ✔ 2.5

3. ✖ 5

4. ✖ 12.5

Question Number : 167 Question Id : 5069615582 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In case of non-availability of space due to topography, the most suitable spillway is

Options :

1. ✖ Straight drop spillway

2. ✔ Shaft spillway

3. ✖ Chute spillway

4. ✖ Ogee spillway

Question Number : 168 Question Id : 5069615583 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the drip emitters in a system deliver 4 liters per hour and there are 50 emitters in the system, what is the total flow rate for the entire system in liters per hour?

Options :

1. ✖ 100

2. ✔ 200

3. ✖

150

4. ✖ 50

Question Number : 169 Question Id : 5069615584 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If a field requires 5000 cubic meters of water to irrigate an area of 100 hectares, what is the delta in centimetres?

Options :

1. ✖ 5

2. ✖ 500

3. ✔ 50

4. ✖ 5000

Question Number : 170 Question Id : 5069615585 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is the peak discharge, for a catchment area of 200 hectares with a runoff coefficient of 0.3 and a rainfall intensity of 60 mm/hr?

Options :

1. ✔ 10 m^3/s

2. ✖ 1 m^3/s

3. ✖ 100 m^3/s

4. ✖ 1000 m^3/s

Question Number : 171 Question Id : 5069615586 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following pollutants causes soil erosion

Options :

1. ✖ Cow Dung

2. ✖ Skeleton of Fish

3. ✖ Old Paper

4. ✔ Plastic

Question Number : 172 Question Id : 5069615587 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Maximum number of vehicles can be parked in a given space with _____ parking

Options :

1. ✔ 90° angle

2. ✖ 60° angle

3. ✖ 45° angle

4. ✖ 30° angle

Question Number : 173 Question Id : 5069615588 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The gauge width of a Broad Gauge (B.G) is

Options :

1. ✖ 1.50 m

2. ✖ 1.60 m

3. ✔ 1.676 m

4. ✖ 1.767 m

Question Number : 174 Question Id : 5069615589 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The first train ran from _____ to _____ in India.

Options :

1. ✖ Bombay to Pune

2. ✖ Bombay to Delhi

3. ✔ Bombay to Thane

4. ✖ Delhi to Thane

Question Number : 175 Question Id : 5069615590 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The stopping sight distance does not depend upon

Options :

1. ✖ Total reaction time of driver

2. ✖ Speed of vehicle

3. ✖ Efficiency of brakes

4. ✔ Overtaking vehicle

Question Number : 176 Question Id : 5069615591 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Headquarters of South-Central Railway (SCR) is located in

Options :

1. ✖ Delhi

2. ✖ Kolkata

3. ✔ Secunderabad

4. ✖ Vijayawada

Question Number : 177 Question Id : 5069615592 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The shape of the most commonly designed highway vertical curve is

Options :

1. ✖ Spiral

2. ✔ Parabolic

3. ✖

Circular (same radius)

4. ✖ Circular (multiple radii)

Question Number : 178 Question Id : 5069615593 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Coning of wheels have a slope of

Options :

1. ✖ 1 in 30

2. ✔ 1 in 20

3. ✖ 1 in 40

4. ✖ 1 in 35

Question Number : 179 Question Id : 5069615594 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The Los Angeles test for stone aggregates is used to examine

Options :

1. ✖ Specific gravity

2. ✔ Abrasion resistance

3. ✖ Soundness

4. ✖ Crushing strength

Question Number : 180 Question Id : 5069615595 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

When the rail joint is placed at the centre of the two consecutive sleepers, it is known as

Options :

1. ✖ Supported joint

2. ✔ Suspended joint

3. ✖ Bridge joint

4. ✖ Overhang joint

Question Number : 181 Question Id : 5069615596 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The shape of the camber, best suited for cement concrete pavements is

Options :

1. ✔ Straight line

2. ✖ Parabolic

3. ✖ Elliptical

4. ✖ Combination of straight and parabolic

Question Number : 182 Question Id : 5069615597 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Coefficient of friction is less, when the pavement surface is

Options :

1. ✖ Dry

2. ✖ Rough

3. ✔ Smooth and wet

4. ✖ Smooth and dry

Question Number : 183 Question Id : 5069615598 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If 'P' is the population served, 'Q' is the quantity of the water required per year in litres, then per capita demand is equal to

Options :

1. ✖ $\frac{P}{Q * 365}$

2. ✔ $\frac{Q}{P * 365}$

3. ✖ P * Q * 365

4. ✖ $\frac{365}{P * Q}$

Question Number : 184 Question Id : 5069615599 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The temporary hardness of water is caused by

Options :

1. ✖ Nitrates of Calcium and Magnesium

2. ✖ Sulphates of Calcium and Magnesium

3. ✖ Chlorides of Calcium and Magnesium

4. ✔ Carbonates and bicarbonates of Calcium and Magnesium

Question Number : 185 Question Id : 5069615600 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The population of a city in 2020 is 200,000 and it is expected to grow by 10,000 people per year. What will be the estimated population in 2025 by Arithmetic Growth method?

Options :

1. ✔ 250,000

2. ✖ 260,000

3. ✖ 270,000

4. ✖ 300,000

Question Number : 186 Question Id : 5069615601 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The system more suited for a planned city where roads and streets are provided in rectangular patterns

Options :

1. ✔ Grid iron distribution system

2. ✖ Ring distribution system

3. ✖ Hybrid distribution system

4. ✖ Parallel distribution system

Question Number : 187 Question Id : 5069615602 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The treatment unit that is used to remove oil, grease and fatty acids is

Options :

1. ✖ Grit chamber

2. ✖ Settling tank

3. ✖ Trickling filter

4. ✔ Skimming tank

Question Number : 188 Question Id : 5069615603 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which valve is used in large pipes so that it allows the fluid to either flow freely or stop the flow entirely

Options :

1. ✖ Pressure relief valve

2. ✖ Reflex valve

3. ✖ Air relief valve

4. ✔ Sluice valve

Question Number : 189 Question Id : 5069615604 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The sewage treatment units which work on anaerobic decomposition of organic matter are

Options :

1. ✖ Oxidation ponds

2. ✔ Septic tank

3. ✖ Activated sludge plants

4. ✖ Trickling Filters

Question Number : 190 Question Id : 5069615605 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is an important consideration in designing a soak pit?

A) Depth of the pit
B) Size of the pit
C) The permeability of the soil
D) Water-logged area

Options :

1. ✖ A is correct

2. ✖ A and C are correct

3. ✖

A, C and D are correct

4. ✔ A, B and C are correct

Question Number : 191 Question Id : 5069615606 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A municipal sewage of 5 ml is added to the 300 ml of distilled water. The initial DO of the sample is 7 mg/l and after 5 days of incubation the DO of the sample is 3 mg/l. The BOD of the sample is

Options :

1. ✔ 240 mg/l

2. ✖ 24 mg/l

3. ✖ 2400 mg/l

4. ✖ 60 mg/l

Question Number : 192 Question Id : 5069615607 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The sewer appurtenance that helps to prevent grease build-up in the system is

Options :

1. ✖ Sewer vent

2. ✔ Grease trap

3. ✖ Siphon

4. ✖ Pump station

Question Number : 193 Question Id : 5069615608 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Percentage of silica in a good brick earth lies between

Options :

1. ✖ 15 to 20%

2. ✖ 25 to 30%

3. ✔ 50 to 60%

4. ✖ 70 to 80%

Question Number : 194 Question Id : 5069615609 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The key ingredient in Portland Cement production is

Options :

1. ✖ Gypsum

2. ✔ Limestone

3. ✖ Sand

4. ✖ Fly ash

Question Number : 195 Question Id : 5069615610 Question Type : MCQ Option Shuffling : Yes

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

Crushing strength of a good building stone should be more than

Options :

1. ✖ 200 MPa

2. ✖ 150 MPa

3. ✔ 100 MPa

4. ✖ 50 MPa

Question Number : 196 Question Id : 5069615611 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The vertical distance between the two treads is known as

Options :

1. ✔ Rise

2. ✖ Step

3. ✖ Nosing

4. ✖ Flight

Question Number : 197 Question Id : 5069615612 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

As per the Indian standards for bricks, minimum acceptable compressive strength of any class of burnt clay bricks in dry state is

Options :

1. ✖ 10 Mpa

2. ✖ 7.5 MPa

3. ✖ 5.0 MPa

4. ✔ 3.5 MPa

Question Number : 198 Question Id : 5069615613 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Seasoning of timber for use in construction is done essentially to

Options :

1. ✖ Smoothen timber surface

2. ✔ Increase strength and durability

3. ✖ Remove knots from timber logs

4. ✖ Cut timber in right season and geometry

Question Number : 199 Question Id : 5069615614 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The rise of water table below the foundation influences the bearing capacity of soil mainly by reducing

Options :

1. ✖ Cohesion and effective angle of shearing resistance

2. ✖ Effective angle of shearing resistance

3. ✔ Cohesion and effective unit weight of soil

4. ✖ Effective unit weight of soil and effective angle of shearing resistance

Question Number : 200 Question Id : 5069615615 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The bond with alternating headers and stretchers in each course is

Options :

1. ✖ English

2. ✔ Flemish

3. ✖ Rat-trap

4. ✖ Stack