# Telangana State Council 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 :** | Mining Engineering 1st Aug 2022 Shift2 |
| **Subject Name :** | Mining Engineering |
| **Creation Date :** | 2022-08-01 18:29:55 |
| **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?** | Yes |
| **Change Font Color :** | No |
| **Change Background Color :** | No |
| **Change Theme :** | No |
| **Help Button :** | No |
| **Show Reports :** | No |
| **Show Progress Bar :** | No |

## Mining Engineering

| | |
|---|---|
| **Group Number :** | 1 |
| **Group Id :** | 81959972 |
| **Group Maximum Duration :** | 0 |
| **Group Minimum Duration :** | 180 |
| **Show Attended Group? :** | No |
| **Edit Attended Group? :** | No |
| **Break time :** | 0 |
| **Group Marks :** | 200 |
| **Is this Group for Examiner? :** | No |
| **Examiner permission :** | Cant View |
| **Show Progress Bar? :** | No |

## Mathematics

| | |
|---|---|
| **Section Id :** | 819599278 |
| **Section Number :** | 1 |

| | |
|---|---|
| **Section type :** | Online |
| **Mandatory or Optional :** | Mandatory |
| **Number of Questions :** | 50 |
| **Number of Questions to be attempted :** | 50 |
| **Section Marks :** | 50 |
| **Enable Mark as Answered Mark for Review and Clear Response :** | Yes |
| **Maximum Instruction Time :** | 0 |
| **Sub-Section Number :** | 1 |
| **Sub-Section Id :** | 819599320 |
| **Question Shuffling Allowed :** | Yes |

**Question Number : 1 Question Id : 81959914236 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

If $A = \begin{bmatrix} a^2 & ab & ac \\ ab & b^2 & bc \\ ac & bc & c^2 \end{bmatrix}$ and $a^2 + b^2 + c^2 = 1$ then $A^2 =$

**Options :**

1. ✖ I

2. ✔ A

3. ✖ $A^{-1}$

4. ✖ $A^3$

**Question Number : 2 Question Id : 81959914237 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

If $adjA = \begin{bmatrix} 1 & -1 & 0 \\ 2 & 3 & 1 \\ 2 & 1 & -1 \end{bmatrix}$ then $adj\ 2A =$

**Options :**

1. ✖ $\begin{bmatrix} 1 & -1 & 0 \\ 2 & 3 & 1 \\ 2 & 1 & -1 \end{bmatrix}$

2. ✖ $\begin{bmatrix} 2 & -2 & 0 \\ 4 & 6 & 2 \\ 4 & 2 & -2 \end{bmatrix}$

3. ✔ $\begin{bmatrix} 4 & -4 & 0 \\ 8 & 12 & 4 \\ 8 & 4 & -4 \end{bmatrix}$

4. ✖ $\begin{bmatrix} 8 & -8 & 0 \\ 16 & 24 & 8 \\ 16 & 8 & -8 \end{bmatrix}$

**Question Number : 3 Question Id : 81959914238 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

If $a, b$ and $c$ are distinct and $\begin{vmatrix} a & a^2 & a^3-1 \\ b & b^2 & b^3-1 \\ c & c^2 & c^3-1 \end{vmatrix} = 0$ then

**Options :**

1. ✖ $a+b+c=1$

2. ✖ $a+b+c=0$

3. ✖ $ab+bc+ca=0$

4. ✔ $abc=1$

**Question Number : 4 Question Id : 81959914239 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The System of linear equations $x+y+z=2,\ 2x+y-z=3$ and $3x+2y+kz=4$ has a unique solution if

**Options :**

1. ✔ $k \neq 0$

2. ✖ $-1 < k < 1$

3. ✖ $-2 < k < 2$

4. ✖ $k = 0$

**Question Number : 5 Question Id : 81959914240 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

$\frac{1-x+6x^2}{x-x^3} = \frac{A}{x} + \frac{B}{1-x} + \frac{C}{1+x}$ then $A - B =$

**Options :**

1. ✖ $-1$

2. ✖ $-4$

3. ✖ $-3$

4. ✔ $-2$

**Question Number : 6 Question Id : 81959914241 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

$\frac{ax+b}{(3x+4)^2} = \frac{1}{3x+4} - \frac{3}{(3x+4)^2}$ then $a + b =$

**Options :**

1. ✖ 3

2. ✔ 4

3. ✖ 5

4. ✖ 6

**Question Number : 7 Question Id : 81959914242 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The Period of $cos(x + 2x + 3x + \cdots + nx)$

**Options :**

1. ✖ $2\pi(n+1)$

2. ✔ $\frac{4\pi}{n(n+1)}$

3. ✖ $\frac{2\pi}{n(n+1)}$

4. ✖ $2\pi$

**Question Number : 8 Question Id : 81959914243 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

If $3sin\alpha = 5sin\beta$ then $\frac{tan\left(\frac{\alpha+\beta}{2}\right)}{tan\left(\frac{\alpha-\beta}{2}\right)} =$

**Options :**

1. ✖ 1

2. ✖ 2

3. ✖ 3

4. ✔ 4

**Question Number : 9 Question Id : 81959914244 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

If $x = sin(2tan^{-1}2)$ and $y = sin\left(\frac{1}{2}tan^{-1}\left(\frac{4}{3}\right)\right)$ then

**Options :**

1. ✔ $x > y \text{ and } y^2 = 1 - x$

2. ✖ $x < y$

3. ✖ $x > y \text{ and } y^2 = x$

4. ✖ $y^2 = 1 + x$

**Question Number : 10 Question Id : 81959914245 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

General solution of $tan5\theta tan2\theta = 1$ *is*

**Options :**

1. ✔ $\frac{2n\pi}{7} \pm \frac{\pi}{14}, n \in Z$

2. ✖ $\frac{n\pi}{7}, n \in Z$

3. ✖ $n\pi \pm \frac{\pi}{2}, n \in Z$

4. ✖ $\frac{n\pi}{2} \pm \frac{\pi}{14}, n \in Z$

**Question Number : 11 Question Id : 81959914246 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

In a $\Delta ABC$, if $(a + b + c)(b + c - a) = 3bc$ then $\angle A =$

**Options :**

1. ✖ $30^0$

2. ✖ $45^0$

3. ✔ $60^0$

4. ✖ $135^0$

**Question Number : 12 Question Id : 81959914247 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

If a $\left(\sqrt{3}+i\right)^{100} = 2^{99}(a+ib)$, then $a^2+b^2 =$

**Options :**

1. ✔ 4

2. ✖ 1

3. ✖ 3

4. ✖ 2

**Question Number : 13 Question Id : 81959914248 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The value of "x" so that the line through (3,x) and (2,7) is parallel to the line through (-1,4) and (0,6) is

**Options :**

1. ✖ 3

2. ✖ 6

3. ✔ 9

4. ✖ 8

**Question Number : 14 Question Id : 81959914249 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The Equation of the circle with centre $\left(\frac{a}{2},\frac{b}{2}\right)$ and radius $\sqrt{\frac{a^2+b^2}{4}}$ is

**Options :**

1. ✖ $x^2 + y^2 - ax - by = (a + b)^2$

2. ✔ $x^2 + y^2 - ax - by = 0$

3. ✖ $x^2 + y^2 - ax - by = (a - b)^2$

4. ✖ $x^2 + y^2 - ax - by = \frac{a^2+b^2}{4}$

**Question Number : 15 Question Id : 81959914250 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

If the parabola $y^2 = 4ax$ passes through the point (-3,2), then the length of its latus rectum is _____ units

**Options :**

1. ✖ $\frac{2}{3}$

2. ✔ $\frac{4}{3}$

3. ✖ $\frac{1}{3}$

4. ✖ 4

**Question Number : 16 Question Id : 81959914251 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The Equation of the ellipse whose latus rectum is 15units and the distance between the foci is 10 units with axes being co ordinate axes is

**Options :**

1. ✔ $3x^2 + 4y^2 = 300$

2. ✖ $4x^2 + 3y^2 = 300$

3. ✖ $x^2 + 4y^2 = 300$

4. ✖ $3x^2 + y^2 = 300$

**Question Number : 17 Question Id : 81959914252 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The eccentricity of the Hyperbola $xy = 10$ *is*

**Options :**

1. ✔ $\sqrt{2}$

2. ✖ $2$

3. ✖ $\sqrt{3}$

4. ✖ $\sqrt{\frac{3}{2}}$

**Question Number : 18 Question Id : 81959914253 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

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

**Options :**

1. ✖ $0$

2. ✔ $-\frac{1}{2}$

3. ✖ 1

4. ✖ -1

**Question Number : 19 Question Id : 81959914254 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

If $2^x + 2^y = 2^{x+y}$ then $\frac{dy}{dx} =$

**Options :**

1. ✖ 0

2. ✖ 1

3. ✔ $-2^{y-x}$

4. ✖ $2^{x-y}$

**Question Number : 20 Question Id : 81959914255 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

If $y = \sqrt{cos2x}$ then $y\frac{d^2y}{dx^2} + 2y^2 =$

**Options :**

1. ✖ 0

2. ✖ $\left(\frac{dy}{dx}\right)^2$

3. ✔ $-\left(\frac{dy}{dx}\right)^2$

4. ✖ $y\left(\frac{dy}{dx}\right)$

**Question Number : 21 Question Id : 81959914256 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

If $u = e^x cosy,$ and $v = e^x siny$ then $\frac{\partial u}{\partial x} =$

**Options :**

1. ✖ $\frac{\partial u}{\partial y}$

2. ✖ $\frac{-\partial u}{\partial y}$

3. ✖ $\frac{-\partial v}{\partial y}$

4. ✔ $\frac{\partial v}{\partial y}$

**Question Number : 22 Question Id : 81959914257 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Area of the triangle formed by a tangent to the curve $2xy = a^2$ and coordinate axes is _____ units

**Options :**

1. ✔ $a^2$

2. ✖ $2a^2$

3. ✖ $3a^2$

4. ✖ $4a^2$

**Question Number : 23 Question Id : 81959914258 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The Maximum value of $x^{-x}$ is

**Options :**

1. ✖ $\frac{1}{e}$

2. ✔ $e^{1/e}$

3. ✖ $e^{-1/e}$

4. ✖ $e$

**Question Number : 24 Question Id : 81959914259 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The rate of change of volume of a sphere is equal to the rate of change of its radius. Then its radius is

**Options :**

1. ✖ $\frac{1}{2\pi}$

2. ✖ $2\sqrt{\pi}$

3. ✖ $\sqrt{2\pi}$

4. ✔ $\frac{1}{2\sqrt{\pi}}$

**Question Number : 25 Question Id : 81959914260 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

$\int cos\sqrt{x}\ dx$

**Options :**

1. ✔ $2(\sqrt{x}\sin\sqrt{x} + \cos\sqrt{x})$

2. ✖ $\sqrt{x}\sin\sqrt{x} - \cos\sqrt{x}$

3. ✖ $2(\sqrt{x}\sin\sqrt{x} - \cos\sqrt{x})$

4. ✖ $\frac{\cos\sqrt{x}}{2\sqrt{x}}$

**Question Number : 26 Question Id : 81959914261 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

$$\int_0^{\frac{\pi}{2}} \frac{e^{\cos\theta}}{e^{\cos\theta}+e^{\sin\theta}}\, d\theta$$

**Options :**

1. ✔ $\frac{\pi}{4}$

2. ✖ $e^{\pi}$

3. ✖ $\frac{\pi}{2}$

4. ✖ $0$

**Question Number : 27 Question Id : 81959914262 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The area of the region enclosed by the curve $y = e^{x/a} + e^{-x/a}$ the $x$- axis and the lines $x = \pm a$ is _____ sq. units

**Options :**

1. ✖ $\left(e - \frac{1}{e}\right)$

2. ✔ $2a\left(e - \frac{1}{e}\right)$

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

4. ✖ $a\left(e-\frac{1}{e}\right)$

**Question Number : 28 Question Id : 81959914263 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The volume generated by the rotation of the area bounded by the curve $y^2 = x^3$, the y- axis and the lines $y = 0, y = 8$ about $y$- axis is _____ cu. units

**Options :**

1. ✖ $192\pi$

2. ✔ $\frac{384\pi}{7}$

3. ✖ $\frac{384\pi^2}{7}$

4. ✖ $\frac{384\pi}{5}$

**Question Number : 29 Question Id : 81959914264 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The Mean Square Value of $f(x) = tanx$ as "$x$" varies from $0$ to $\frac{\pi}{3}$

**Options :**

1. ✖ $\frac{1}{\pi}\left(\sqrt{3}-\frac{\pi}{3}\right)$

2. ✖ $\frac{1}{\pi}\left(\sqrt{3}+\frac{\pi}{3}\right)$

3. ✔ $\frac{1}{\pi}\left(3\sqrt{3}-\pi\right)$

4. ✖ $\frac{\pi}{3}\left(\sqrt{3}-\frac{\pi}{3}\right)$

**Question Number : 30 Question Id : 81959914265 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The Values of function $f(x)$at 5 discrete points are given below

| $x$ | 0 | 0.1 | 0.2 | 0.3 | 0.4 |
|---|---|---|---|---|---|
| $f(x)$ | 0 | 10 | 40 | 90 | 160 |

then the value of $\int_0^4 f(x)dx$

**Options :**

1. ✖ 24

2. ✖ 23

3. ✔ 22

4. ✖ 20

**Question Number : 31 Question Id : 81959914266 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The order and degree of the differential equation $\frac{d^2y}{dx^2}=\left(y+\left(\frac{dy}{dx}\right)^2\right)^{1/4}$ is

**Options :**

1. ✔ 2, 4

2. ✖ 4, 2

3. ✖ 2, 2

4. ✖ 2, 1

**Question Number : 32 Question Id : 81959914267 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The differential equation associated with the primitive $Ax^2 + By^2 = 1$ is

**Options :**

1. ✖ $xy\frac{d^2y}{dx^2} + \left(\frac{dy}{dx}\right)^2 - x\left(\frac{dy}{dx}\right) = 0$

2. ✖ $y\frac{d^2y}{dx^2} + x\left(\frac{dy}{dx}\right)^2 - y\left(\frac{dy}{dx}\right) = 0$

3. ✔ $xy\frac{d^2y}{dx^2} + x\left(\frac{dy}{dx}\right)^2 - y\left(\frac{dy}{dx}\right) = 0$

4. ✖ $xy\frac{d^2y}{dx^2} - x\left(\frac{dy}{dx}\right)^2 + y\left(\frac{dy}{dx}\right) = 0$

**Question Number : 33 Question Id : 81959914268 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Solution of the differential equation $(3e^{3x}y - 2x)dx + e^{3x}dy = 0$ is

**Options :**

1. ✖ $ye^{-3x} = x^2 + C$

2. ✔ $ye^{3x} = x^2 + C$

3. ✖ $ye^{3x} = -x^2 + C$

4. ✖ $ye^{3x} = \frac{1}{2}x^2 + C$

**Question Number : 34 Question Id : 81959914269 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The Integrating Factor for the differential equation $\frac{dp}{dt} + k_2 p = k_1 e^{-k_1 t}$ is

**Options :**

1. ✖ $e^{-k_1 t}$

2. ✖ $e^{-k_2 t}$

3. ✖ $e^{k_1 t}$

4. ✔ $e^{k_2 t}$

**Question Number : 35 Question Id : 81959914270 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The Solution of $4\frac{d^2y}{dx^2} - 4\frac{dy}{dx} + y = 0$ is

**Options :**

1. ✖ $y = (A + Bx)e^{-x/2}$

2. ✔ $y = (A + Bx)e^{x/2}$

3. ✖ $y = Ae^{x/2} + Be^{-x/2}$

4. ✖ $y = (A + Bx)e^{x}$

**Question Number : 36 Question Id : 81959914271 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The particular integral of $2\frac{d^2y}{dx^2} + \frac{dy}{dx} - 6y = e^{-2x}$ is

**Options :**

1. ✔ $-\frac{x}{7}e^{-2x}$

2. ✖ $\frac{x}{7}e^{-2x}$

3. ✖ $\frac{1}{7}e^{-2x}$

4. ✖ $-\frac{1}{7}e^{-2x}$

**Question Number : 37 Question Id : 81959914272 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The Particular Integral of $\frac{d^3y}{dx^3} - 1 = sin3x$ is

**Options :**

1. ✖ $\frac{1}{730}(27\cos 3x + \sin 3x)$

2. ✔ $\frac{1}{730}(27\cos 3x - \sin 3x)$

3. ✖ $\frac{-1}{730}(27\cos 3x + \sin 3x)$

4. ✖ $\frac{-1}{730}(27\cos 3x - \sin 3x)$

**Question Number : 38 Question Id : 81959914273 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The Particular Integral of $\frac{d^2y}{dx^2} - 3\frac{dy}{dx} + 2y = x + x^2$ is

**Options :**

1. ✔ $\frac{1}{2}(x^2 + 4x + 5)$

2. ✖ $\frac{1}{2}(x^2 - 4x - 5)$

3. ✖ $\frac{1}{2}(x^2 - 4x + 5)$

4. ✖ $-\frac{1}{2}(x^2 + 4x + 5)$

**Question Number : 39 Question Id : 81959914274 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

$L\{cos4tsin2t\} =$

**Options :**

1. ✖ $\frac{4}{s^2+4} + \frac{s}{s^2+36}$

2. ✔ $\frac{3}{s^2+36} - \frac{1}{s^2+4}$

3. ✖ $\frac{2}{s^2+4} + \frac{3s}{s^2+36}$

4. ✖ $\frac{3}{s^2+36} + \frac{1}{s^2+4}$

**Question Number : 40 Question Id : 81959914275 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

$L\left\{\frac{sint}{t}\right\} = tan^{-1}\left(\frac{1}{s}\right)$ then $L\left\{\frac{sinat}{t}\right\}$

**Options :**

1. ✖ $tan^{-1}\left(\frac{s}{a}\right)$

2. ✔ $tan^{-1}\left(\frac{a}{s}\right)$

3. ✖ $\frac{1}{a}tan^{-1}\left(\frac{a}{s}\right)$

4. ✖ $\frac{1}{a}tan^{-1}\left(\frac{s}{a}\right)$

**Question Number : 41 Question Id : 81959914276 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

$L\{tcos3t\} =$

**Options :**

1. ✖ $\frac{9}{(s^2+9)^2}$

2. ✖ $\frac{s^2}{(s^2+9)^2}$

3. ✖ $\frac{s^2+9}{(s^2-9)^2}$

4. ✔ $\frac{s^2-9}{(s^2+9)^2}$

**Question Number : 42 Question Id : 81959914277 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

$L\left\{\frac{1-cost}{t}\right\} =$

**Options :**

1. ✖ $log\sqrt{\frac{s^2+1}{s^2}}$

2. ✖ $log\left(\frac{s^2+1}{s^2}\right)$

3. ✖ $\sqrt{log\left(\frac{s^2+1}{s^2}\right)}$

4. ✔ $log\sqrt{\left(\frac{s^2}{s^2+1}\right)}$

**Question Number : 43 Question Id : 81959914278 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

$L^{-1}\left(\frac{s}{(s+1)^2}\right) =$

**Options :**

1. ✔ $e^{-t}(1-t)$

2. ✖ $e^{t}(t-1)$

3. ✖ $e^{-t}(t-1)$

4. ✖ $e^{t}(1-t)$

**Question Number : 44 Question Id : 81959914279 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

If $L^{-1}\{F(s)\} = f(t)$ then $L^{-1}\left\{\int_s^{\infty} F(s)ds\right\} =$

**Options :**

1. ✖ $f'(t)$

2. ✖ $tf'(t)$

3. ✖ $tf(t)$

4. ✔ $\frac{f(t)}{t}$

**Question Number : 45 Question Id : 81959914280 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum**

**Instruction Time : 0**
**Correct Marks : 1 Wrong Marks : 0**

A system is described by the differential equation $\frac{d^2y}{dt^2} + 4\frac{dy}{dt} + 5y = 0$

assuming $y(0) = 0, y'(0) = 0$ then $L\{y(t)\}$

**Options :**

1. ✖ $\frac{1}{s(s^2+4s+5)}$

2. ✖ $\frac{s}{(s^2+4s+5)}$

3. ✖ $\frac{5}{(s^2+4s+5)}$

4. ✔ $\frac{5}{s(s^2+4s+5)}$

**Question Number : 46 Question Id : 81959914281 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**
**Correct Marks : 1 Wrong Marks : 0**

$L^{-1}\left(\frac{1}{s(s^2+a^2)}\right) =$

**Options :**

1. ✖ $\frac{1-sinat}{a^2}$

2. ✖ $\frac{1+cosat}{a^2}$

3. ✔ $\frac{1-cosat}{a^2}$

4. ✖ $\frac{1+sinat}{a^2}$

**Question Number : 47 Question Id : 81959914282 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum**

**Instruction Time : 0**
**Correct Marks : 1 Wrong Marks : 0**

The Fourier series expansion of $f(x) = |sinx|$ over $(-l, l)$,

the value of $b_n =$

**Options :**

1. ✔ 0

2. ✖ $\frac{2}{l(n^2-1)}$

3. ✖ $\frac{4}{l(n^2-1)}$

4. ✖ $\frac{4}{l(1-n^2)}$

**Question Number : 48 Question Id : 81959914283 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**
**Correct Marks : 1 Wrong Marks : 0**

If $f(x) = \begin{cases} 0, -\pi < x < 0 \\ x^2, \ 0 < x < \pi \end{cases}$ and

$f(x) = \frac{a_0}{2} + \sum_{n=1}^{\infty}(a_n cosnx + b_n sinnx)$ then $a_0 =$

**Options :**

1. ✖ $\frac{\pi}{3}$

2. ✖ $\frac{3}{\pi}$

3. ✔ $\frac{\pi^2}{3}$

4. ✖ $\frac{\pi^2}{2}$

**Question Number : 49 Question Id : 81959914284 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The Half range cosine series expansion of the function $f(x) = x - x^2,\ 0 < x < 1$ is represented by $a_2 =$

**Options :**

1. ✔ $-\frac{4}{\pi^2}$

2. ✖ $\frac{4}{\pi^2}$

3. ✖ $\frac{1}{\pi^2}$

4. ✖ $-\frac{1}{\pi^2}$

**Question Number : 50 Question Id : 81959914285 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The value of "$b_4$" in the Fourier series expansion of $f(x) = 3x^2 - 2$ in $(-3,3)$ is_____

**Options :**

1. ✖ $14$

2. ✖ $\frac{-108}{\pi^2}$

3. ✖ $\frac{108}{\pi^2}$

4. ✔ $0$

# Physics

| | |
|---|---|
| **Section Id :** | 819599279 |
| **Section Number :** | 2 |
| **Section type :** | Online |
| **Mandatory or Optional :** | Mandatory |
| **Number of Questions :** | 25 |

| | |
|---|---|
| **Number of Questions to be attempted :** | 25 |
| **Section Marks :** | 25 |
| **Enable Mark as Answered Mark for Review and Clear Response :** | Yes |
| **Maximum Instruction Time :** | 0 |
| **Sub-Section Number :** | 1 |
| **Sub-Section Id :** | 819599321 |
| **Question Shuffling Allowed :** | Yes |

**Question Number : 51 Question Id : 81959914286 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The dimensional formula for kinetic energy is

**Options :**

1. ✖ $M^0L^0T^0$

2. ✔ $M^1L^2T^{-2}$

3. ✖ $M^1L^2T^{-1}$

4. ✖ $M^1L^1T^{-2}$

**Question Number : 52 Question Id : 81959914287 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

In photoelectric effect, the photo current

**Options :**

1. ✖ depends both on intensity and frequency of incident light

2. ✔ does not depends on the frequency of photon but depends only on intensity of incident light

3. ✖ decreases with increase of frequency of incident photon

4. ✖ increases with increase of frequency of incident photon

**Question Number : 53 Question Id : 81959914288 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Optical fibers uses the phenomenon of

**Options :**

1. ✔ total internal reflection

2. ✖ refraction

3. ✖ dispersion

4. ✖ scattering

**Question Number : 54 Question Id : 81959914289 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The volume of 1 mole of an ideal gas at STP

**Options :**

1. ✔ $2.24 \times 10^{-2} m^3$

2. ✖ $2.24 \times 10^{-3} m^3$

3. ✖ $2.42 \times 10^{-3} m^3$

4. ✖ $24.2 \times 10^{-3} m^3$

**Question Number : 55 Question Id : 81959914290 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following statement is correct in the case of an isothermal process of a gas

**Options :**

1. ✖ Temperature changes

2. ✔ Exchange of heat takes place between gas and surroundings

3. ✖ Boyle's law does not valid

4. ✖ It is a quick process

**Question Number : 56 Question Id : 81959914291 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

What is the angle between $\overrightarrow{P}$ and the resultant of $(\overrightarrow{P}+\vec{Q})$ and $(\vec{P}-\vec{Q})$

**Options :**

1. ✖ $\tan^{-1}\frac{(P-Q)}{(P+Q)}$

2. ✖ $\tan^{-1}(\frac{P}{Q})$

3. ✖ $\tan^{-1}(\frac{Q}{P})$

4. ✔ Zero

**Question Number : 57 Question Id : 81959914292 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

If the magnitudes of scalar and vector products of two vectors are 6 and $6\sqrt{3}$ respectively, then the angle between the vectors

**Options :**

1. ✖ $15^0$

2. ✖ $30^0$

3. ✔ $60^0$

4. ✖ $75^0$

**Question Number : 58 Question Id : 81959914293 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Two equal forces (F each) act at a point inclined to each other at an angle of $120^0$.

The magnitude of their resultant is

**Options :**

1. ✖ F/2

2. ✖ F/4

3. ✔ F

4. ✖ 2F

**Question Number : 59 Question Id : 81959914294 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The quantity which remains unchanged during the flight of an oblique projectile is

**Options :**

1. ✖ Horizontal distance

2. ✖ Vertical distance

3. ✖ Vertical component of velocity

4. ✔ Horizontal component of velocity

**Question Number : 60 Question Id : 81959914295 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

An object is thrown along a direction inclined at angle of $45^0$ with the horizontal.

If 'R' represents horizontal range and 'H' represents vertical height of object,

which of the following is correct

**Options :**

1. ✖ R=H

2. ✖ R=2H

3. ✖ R=3H

4. ✔ R=4H

**Question Number : 61 Question Id : 81959914296 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

A bullet is fired with a velocity 10 m/s making an angle of $60^0$ with the horizontal plane.

The horizontal component of the velocity of bullet when it reaches maximum height is

**Options :**

1. ✖ 10 m/s

2. ✖ 0

3. ✖ 8 m/s

4. ✔ 5 m/s

**Question Number : 62 Question Id : 81959914297 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

If $\mu_s$, $\mu_k$, $\mu_r$ are coefficients of static friction, sliding friction and rolling friction, then

**Options :**

1. ✔ $\mu_r < \mu_k < \mu_s$

2. ✖ $\mu_k < \mu_r < \mu_s$

3. ✖ $\mu_k < \mu_s < \mu_r$

4. ✖ $\mu_s = \mu_k = \mu_r$

**Question Number : 63 Question Id : 81959914298 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

A body falling from a height of 10 metre rebounds from a hard floor. If it loses 20% of its energy in impact, it will rise

**Options :**

1. ✖ 10m

2. ✔ 8m

3. ✖ 5m

4. ✖ 12m

**Question Number : 64 Question Id : 81959914299 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

A body of mass 10 kg is travelling with uniform speed of 5m/s. Its kinetic energy is

**Options :**

1. ✖ 25 J

2. ✔ 125 J

3. ✖ 1250 J

4. ✖ 1000 J

**Question Number : 65 Question Id : 81959914300 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

If a stone is thrown up vertically and returns to ground, its potential energy is maximum

**Options :**

1. ✖ During upward journey

2. ✔ At the maximum height

3. ✖ During return journey

4. ✖ On the ground

**Question Number : 66 Question Id : 81959914301 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

A second's pendulum is taken from earth to moon. If it is to act as a second's pendulum there also, the length of the pendulum

**Options :**

1. ✖ Should be increased

2. ✔ Should be decreased

3. ✖ Need not be changed

Difficult to imagine

4. ✖

**Question Number : 67 Question Id : 81959914302 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

In a simple harmonic motion, the maximum acceleration and maximum velocity are $31.4m/s^2$ and 10m/s. The time period is

**Options :**

1. ✖ 4s

2. ✖ 3s

3. ✔ 2s

4. ✖ 0.5s

**Question Number : 68 Question Id : 81959914303 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

A person standing between two hills fires a gun. He hears first echo after 1 second and second echo after 2 second. If velocity of sound in air is 340m/s, the distance between the hills is

**Options :**

1. ✖ 170m

2. ✖ 340m

3. ✔ 510m

4. ✖ 1020m

**Question Number : 69 Question Id : 81959914304 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum**

**Instruction Time : 0**
**Correct Marks : 1 Wrong Marks : 0**

Two tuning forks of frequencies 256 and 258 vibrations /second are sounded together. Then the time interval between two consecutive maxima heard by an observer is

**Options :**

1. ✖ 2 s

2. ✔ 0.5 s

3. ✖ 250 s

4. ✖ 252 s

**Question Number : 70 Question Id : 81959914305 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**
**Correct Marks : 1 Wrong Marks : 0**

According to Hooks law, the relation between stress and strain is

**Options :**

1. ✔ Stress α Strain

2. ✖ Stress $\alpha \frac{1}{Strain}$

3. ✖ Stress $\alpha$ $(\text{Strain})^2$

4. ✖ Stress $\alpha$ $(Strain)^{\frac{1}{2}}$

**Question Number : 71 Question Id : 81959914306 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**
**Correct Marks : 1 Wrong Marks : 0**

An iron needle slowly placed on surface of water floats on it because

**Options :**

1. ✖ of elasticity

2. ✖ of viscosity

3. ✔ of surface tension

4. ✖ of its shape

**Question Number : 72 Question Id : 81959914307 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

What happens to the force between magnetic poles when their pole strength and the distance between them are both doubled

**Options :**

1. ✖ Force increases by two times

2. ✔ Force remains unchanged

3. ✖ Force becomes halved

4. ✖ Force increases by four times

**Question Number : 73 Question Id : 81959914308 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Substances which when placed in a magnetic field acquire feeble magnetisation in a direction opposite to that of the applied field are called

**Options :**

1. ✔ Diamagnetic substances

2. ✖ Paramagnetic substances

3. ✖ Ferromagnetic substances

4. ✖ Ferrimagnetic substances

**Question Number : 74 Question Id : 81959914309 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The resistance of wire of length 'L' and diameter 'D' is R Ω. The resistance of another wire of same material having length 'L' and diameter $\frac{D}{2}$ is _____ Ω.

**Options :**

1. ✖ $\frac{1}{2}$R

2. ✖ 2R

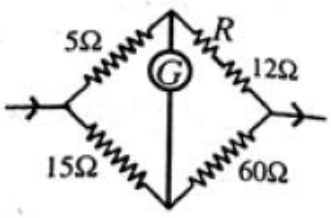
3. ✔ 4R

4. ✖ 16R

**Question Number : 75 Question Id : 81959914310 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

To balance the bridge in the circuit, the value of R is




**Options :**

1. ✔ 8 Ω

2. ✖ $4\ \Omega$

3. ✖ $20\ \Omega$

4. ✖ $12\ \Omega$

# Chemistry

| | |
|---|---|
| **Section Id :** | 819599280 |
| **Section Number :** | 3 |
| **Section type :** | Online |
| **Mandatory or Optional :** | Mandatory |
| **Number of Questions :** | 25 |
| **Number of Questions to be attempted :** | 25 |
| **Section Marks :** | 25 |
| **Enable Mark as Answered Mark for Review and Clear Response :** | Yes |
| **Maximum Instruction Time :** | 0 |
| **Sub-Section Number :** | 1 |
| **Sub-Section Id :** | 819599322 |
| **Question Shuffling Allowed :** | Yes |

**Question Number : 76 Question Id : 81959914311 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Number of electrons present in outermost shell of copper atom is

**Options :**

1. ✖ 2

2. ✔ 1

3. ✖ 18

4. ✖ 11

**Question Number : 77 Question Id : 81959914312 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The bond exists between $NH_3$ and $H^+$ in $NH_4^+$ is

**Options :**

1. ✖ Ionic

2. ✖ Covalent

3. ✔ Coordinate covalent

4. ✖ Metallic

**Question Number : 78 Question Id : 81959914313 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Possible all oxidation numbers of hydrogen are

**Options :**

1. ✖ -1 and 0

2. ✖ +1 and 0

3. ✖ +1 and -1

4. ✔ +1, -1 and 0

**Question Number : 79 Question Id : 81959914314 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Molecular weight of a dibasic acid is M. Its equivalent weight is

**Options :**

1. ✖ M

2. ✔ $M/2$

3. ✖ 2M

4. ✖ M+2

**Question Number : 80 Question Id : 81959914315 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Lyophobic colloids are

**Options :**

1. ✔ required stabilisers

2. ✖ prepared by direct mixing

3. ✖ more stable

4. ✖ solvent attracting colloids

**Question Number : 81 Question Id : 81959914316 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which one of the following is not a Lewis acid

**Options :**

1. ✔ HCl

2. ✖ $BF_3$

3. ✖ $Mg^{2+}$

4. ✖ $SO_2$

**Question Number : 82 Question Id : 81959914317 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The solution with more pH value

**Options :**

1. ✖ 0.1 M HCl

2. ✖ 0.5 M HCl

3. ✖ 0.1 M NaOH

4. ✔ 0.5 M NaOH

**Question Number : 83 Question Id : 81959914318 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Froth floatation is used concentrate _____ ores

**Options :**

1. ✖ oxide

2. ✖ carbonate

3. ✔ sulphide

4. ✖ chloride

**Question Number : 84 Question Id : 81959914319 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which one of the following element is not present in German silver

**Options :**

1. ✔ Fe

2. ✖ Ni

3. ✖ Cu

4. ✖ Zn

**Question Number : 85 Question Id : 81959914320 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

A device that converts the energy of combustion of fuels like hydrogen and methane directly into electrical energy is known as

**Options :**

1. ✖ Electrolytic cell

2. ✖ Leclanche cell

3. ✔ Fuel cell

4. ✖ Ni- Cd cell

**Question Number : 86 Question Id : 81959914321 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Anode used in the electrolytic refining of copper is

**Options :**

1. ✖ Pt

2. ✔ Impure Cu

3. ✖ Graphite

pure copper

4. ✖

**Question Number : 87 Question Id : 81959914322 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Number of Faradays of current required to decompose 36 grams of water completely

**Options :**

1. ✖ 2

2. ✔ 4

3. ✖ 3

4. ✖ 6

**Question Number : 88 Question Id : 81959914323 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The atomic weight of Cu is x, the electrochemical equivalent of Cu in the solution of copper sulphate is

**Options :**

1. ✖ $\frac{2x}{F}$

2. ✔ $\frac{x}{2F}$

3. ✖ $\frac{x}{F}$

4. ✖ xF

**Question Number : 89 Question Id : 81959914324 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Rate of corrosion increases with

**Options :**

1. ✖ decrease of temperature

2. ✖ decrease of humidity

3. ✔ reactivity of metal

4. ✖ purity of metal

**Question Number : 90 Question Id : 81959914325 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Chemical formula of the rust is

**Options :**

1. ✔ $Fe_2O_3.XH_2O$

2. ✖ $Fe_3O_4$

3. ✖ $Fe_2(C_2O_4)_3$

4. ✖ $FeCl_3$

**Question Number : 91 Question Id : 81959914326 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Exhausted permutit is regenerated by using

**Options :**

1. ✖ $CaCl_2$

2. ✖ HCl

3. ✔ NaCl

4. ✖ $MgSO_4$

**Question Number : 92 Question Id : 81959914327 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Temporary hardness of water containing 16.2 mg of $Ca(HCO_3)_2$ and 7.3 mg of $Mg(HCO_3)_2$ per litre

**Options :**

1. ✖ 10 mg/lit

2. ✖ 5 mg/lit

3. ✔ 15 mg/lit

4. ✖ 20 mg/lit

**Question Number : 93 Question Id : 81959914328 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Bakelite is an example of

**Options :**

1. ✔ thermosetting plastic

2. ✖ fibre

3. ✖ thermoplastic

4. ✖ elastomer

**Question Number : 94 Question Id : 81959914329 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following are monomers of butyl rubber

**Options :**

1. ✖ Butadiene and styrene

2. ✖ Chloroprene

3. ✖ Phenol and formaldehyde

4. ✔ Isobutylene and isoprene

**Question Number : 95 Question Id : 81959914330 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Main gases present in producer gas

**Options :**

1. ✖ $CO$ & $H_2$

2. ✖ $CH_4$ & $CO_2$

3. ✔ $CO$ & $N_2$

4. ✖ $H_2$ & $CH_4$

**Question Number : 96 Question Id : 81959914331 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Number of moles of oxygen required for combustion of 30 grams of ethane is

**Options :**

1. ✖ 7

2. ✖ 2

3. ✖ 2.5

4. ✔ 3.5

**Question Number : 97 Question Id : 81959914332 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which layer of the atmosphere contains the ozone layer that absorbs of UV light?

**Options :**

1. ✔ Stratosphere

2. ✖ Troposphere

3. ✖ Mesosphere

4. ✖ Ionosphere

**Question Number : 98 Question Id : 81959914333 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The contaminant among the following

**Options :**

1. ✖ $SO_2$

2. ✔ MIC

3. ✖ $CO_2$

4. ✖ $CH_4$

**Question Number : 99 Question Id : 81959914334 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Gases responsible for depletion of Ozone layer are

**Options :**

1. ✖ $CO_2$, CFC, $CH_4$

2. ✖ $SO_2$, $NO_2$, $CH_4$

3. ✔ CFC, NO, $Cl_2$

4. ✖ CO, $SO_2$, $CH_4$

**Question Number : 100 Question Id : 81959914335 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The most harmful air pollutant produced by automobiles is

**Options :**

1. ✖ $SO_2$

2. ✖ NO

3. ✔ CO

4. ✖ $Cl_2$

# Mining Engineering

| | |
|---|---|
| **Section Id :** | 819599281 |
| **Section Number :** | 4 |
| **Section type :** | Online |
| **Mandatory or Optional :** | Mandatory |
| **Number of Questions :** | 100 |

| | |
|---|---|
| **Number of Questions to be attempted :** | 100 |
| **Section Marks :** | 100 |
| **Enable Mark as Answered Mark for Review and Clear Response :** | Yes |
| **Maximum Instruction Time :** | 0 |
| **Sub-Section Number :** | 1 |
| **Sub-Section Id :** | 819599323 |
| **Question Shuffling Allowed :** | Yes |

**Question Number : 101 Question Id : 81959914336 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Identify the characteristic feature of usage of Low Explosive

**Options :**

1. ✖ Detonation

2. ✖ Air over pressure

3. ✔ Heaving effect

4. ✖ Shuttering effect

**Question Number : 102 Question Id : 81959914337 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The method mining used for the extraction under sea deposits is

**Options :**

1. ✖ Placer Mining

2. ✔ Dredging

3. ✖ Under sea Mining

4. ✖ Deep sea Mining

**Question Number : 103 Question Id : 81959914338 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The property of explosive which will not allow to change the performance of explosive after storage in a magazine is

**Options :**

1. ✖ Detonation

2. ✖ Sensitivity

3. ✔ Stability

4. ✖ Water resistance

**Question Number : 104 Question Id : 81959914339 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following device is used for the attachment of bucket to the rope during shaft sinking

**Options :**

1. ✖ Rider

2. ✔ Clivy

3. ✖ Kibble

4. ✖ Rider cone

**Question Number : 105 Question Id : 81959914340 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The method shaft sinking used in a fissured and geological disturbed strata

**Options :**

1. ✔ Cementation method

2. ✖ Freezing method

3. ✖ Caisson method

4. ✖ Piling method

**Question Number : 106 Question Id : 81959914341 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Identify the correct sequence of blasting operations in Underground coal mines

**Options :**

1. ✔ Drilling, Charging, Stemming, Blasting, Mucking

2. ✖ Drilling, Charging, Mucking, Stemming, Blasting

3. ✖ Mucking, Drilling, Charging, Stemming, Blasting

4. ✖ Drilling, Stemming, Charging, Mucking, Blasting

**Question Number : 107 Question Id : 81959914342 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Tri-Cone roller bit is used with

**Options :**

1. ✖ Percussive Drilling

2. ✔ Rotary Drilling

3. ✖ Down The Hole (DTH)

4. ✖ Jack hammer drill

**Question Number : 108 Question Id : 81959914343 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The gelling agent in a Slurry explosive is

**Options :**

1. ✖ Ammonium Nitrate

2. ✖ TNT

3. ✔ Starch

4. ✖ Aluminum Powder

**Question Number : 109 Question Id : 81959914344 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The purpose of weep holes in Permanent lining of shaft sinking is

**Options :**

1. ✖ Increase the shear strength of lining

2. ✖ To inject grouting material behind the lining

3. ✔ To reduce hydro static pressure behind the lining

4. ✖ To reduce extra clearance space behind the lining

**Question Number : 110 Question Id : 81959914345 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

When the coal is burnt in an environment with insufficient supply of Oxygen , the gas produced is

**Options :**

1. ✖ $CO_2$ (Carbon Di-oxide)

2. ✔ CO (Carbon monoxide)

3. ✖ Nitrous fumes

4. ✖ $CH_4$ (Methane)

**Question Number : 111 Question Id : 81959914346 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The maximum permissible value of wet bulb temperature in underground coal mines is

**Options :**

1. ✖ 30.5 °C

2. ✔ 33.5 °C

3. ✖ 32 °C

4. ✖ 35 °C

**Question Number : 112 Question Id : 81959914347 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which one of the following gas detector works based on Wheat-stone-bridge principle

**Options :**

1. ✖ Spir alarm

2. ✖ Rikon Interferometer

3. ✔ MSA Methanometer

Ring rose Fire damp detector

4. ✖

**Question Number : 113 Question Id : 81959914348 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

If the percentage of CO (Carbon monoxide) lies in the range of 0.5 to 1.0 % in a mine environment then the corresponding Physiological affect is

**Options :**

1. ✖ Head ache and discomfort after 10 min of exposure

2. ✖ Palpitation after 10 min at work

3. ✖ Unconsciousness after 10 min of exposure

4. ✔ Death after 10 to 15 min of work.

**Question Number : 114 Question Id : 81959914349 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The composition of Black Damp is

**Options :**

1. ✖ $CO + N_2$

2. ✔ $CO_2 + N_2$

3. ✖ $CH_4 + CO$

4. ✖ $CH_4 + CO_2$

**Question Number : 115 Question Id : 81959914350 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum**

**Instruction Time : 0**
**Correct Marks : 1 Wrong Marks : 0**

Which of the following term is not used to describe Geological fault

**Options :**

1. ✔ Gradient

2. ✖ Hade

3. ✖ Want

4. ✖ Throw

**Question Number : 116 Question Id : 81959914351 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**
**Correct Marks : 1 Wrong Marks : 0**

If the rock is continuous, homogenous and isotropic is called

**Options :**

1. ✖ Rock mass

2. ✖ Rock Joint

3. ✖ Rock Mineral

4. ✔ Intact Rock

**Question Number : 117 Question Id : 81959914352 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**
**Correct Marks : 1 Wrong Marks : 0**

The folds that are oriented concave upward, they are called _____ and those are concave downward are called _____

**Options :**

1. ✔ Syncline, Anticline

2. ✖ Anticline, Syncline

3. ✖ Incline, Decline,

4. ✖ Decline, Incline

**Question Number : 118 Question Id : 81959914353 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Mica mineral is classified as

**Options :**

1. ✖ Metallic mineral

2. ✔ Nonmetallic mineral

3. ✖ Precious mineral

4. ✖ Rare mineral

**Question Number : 119 Question Id : 81959914354 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The smallest division of Geological Time Scale is

**Options :**

1. ✖ Era

2. ✔ Epoch

3. ✖ Period

4. ✖ Ero

**Question Number : 120 Question Id : 81959914355 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The texture of rocks formed due to consolidation of magma nearer to the surface is

**Options :**

1. ✖ Course texture

2. ✖ Medium texture

3. ✔ Fine texture

4. ✖ Conglomerate

**Question Number : 121 Question Id : 81959914356 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which one of the following is an example of Plutonic rock

**Options :**

1. ✖ Marble

2. ✔ Granite

3. ✖ Limestone

4. ✖ Calcite

**Question Number : 122 Question Id : 81959914357 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The igneous rocks formed due to vertical consolidation of magma is

**Options :**

1. ✖ Unconformity

2. ✖ Discontinuity

3. ✔ Dyke

4. ✖ Sill

**Question Number : 123 Question Id : 81959914358 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The metamorphic formation of rock mass is Marble, then its parent rock formation is

**Options :**

1. ✖ Sandstone

2. ✔ Limestone

3. ✖ Quartz

4. ✖ Shale

**Question Number : 124 Question Id : 81959914359 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The upper surface of a Zone of saturation of ground water is

**Options :**

1. ✔ Water table

2. ✖ Aquiclude

3. ✖ Aquifer

4. ✖ Aquifuge

**Question Number : 125 Question Id : 81959914360 Question Type : MCQ Option Shuffling : Yes Display Question**

**Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The following are the Geo mining conditions of a Coal deposit.

- Thickness of the seam is 1.5 to 4.5 m
- Flat deposit
- Proposed Highly mechanized mining with high production

The suitable method of extraction is

**Options :**

1. ✖ Bord and Pillar Method

2. ✖ Room and Pillar method

3. ✔ Longwall mining

4. ✖ Blasting gallery method

**Question Number : 126 Question Id : 81959914361 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The following are various parameters of coal deposit extracted by Longwall panel with shearer.

Length of the panel (L) – 100 m

Thickness of the seam - 2.5 m

Width of web cut by the shearer in each round – 0.5 m

Bulk density of coal – 1.5 tons/ $m^3$.

The production in tons after 4 rounds of its cyclic operation of shearer in a shift of 8 hours is

**Options :**

1. ✖ 500 tons

2. ✖ 600 tons

3. ✖ 700 tons

4. ✔ 750 tons

**Question Number : 127 Question Id : 81959914362 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

A pillar of 40 m X 40 m center to center distance is developed by driving a roadway of 4.8 m wide in Board and Pillar method of mining. The deposit is present at a depth of 250 m. The area of the roof supported by the pillar by tributary area method is ___

**Options :**

1. ✖ 1296 $m^2$

2. ✔ 1600 $m^2$

3. ✖ 1936 $m^2$

4. ✖ 2400 $m^2$

**Question Number : 128 Question Id : 81959914363 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

A square pillar of side 30 m (center to center) is developed in Board pillar mining, by driving roadway of 5 m wide. The depth of the deposit is 200 m. The percentage of extraction of coal during development of the pillar is ____

**Options :**

1. ✖ 25%

2. ✔ 30.5 %

3. ✖ 32.5%

4. ✖ 35%

**Question Number : 129 Question Id : 81959914364 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

In a fully mechanized board and pillar mining, winning of coal and its transportation from the face is commonly carried out with the combination of

**Options :**

1. ✔ Continuous Miner, Shuttle car, feeder breaker and belt conveyor

2. ✖ Continuous Miner, LHD, feeder breaker and Chain conveyor

3. ✖ Continuous Miner, SDL, feeder breaker and Belt Conveyor

4. ✖ Continuous Miner, Shuttle Car, Feeder breaker and Chain conveyor

**Question Number : 130 Question Id : 81959914365 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The dimensions of a development face of a Bord and pillar method extraction are given below.

Width of the face (w) – 2.5 m

Height of the face (h) – 2 m

Advancement of the face per blast (l) – 1 m

No of drill holes blasted (n) – 10

Charge per hole – 500 gm

Bulk density of coal = 1.5 tons / $m^3$

The powder factor in tons /kg is ____

**Options :**

1. ✖ 2 tons / kg

2. ✔ 1.5 tons /kg

3. ✖ 1 tons/kg

4. ✖ 0.75 tons/kg

**Question Number : 131 Question Id : 81959914366 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The phenomenon of crushing of pillar due to delay in local fall of massive sand stone of overlying strata is known as

**Options :**

1. ✖ Spalling of pillars

2. ✖ Coal bump

3. ✖ Stiffening of the pillars

4. ✔ Over riding of the pillars

**Question Number : 132 Question Id : 81959914367 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

In Panel system of extraction to decide the size of the panel which one of the following factor is taken in to consideration

**Options :**

1. ✖ Thickness of the seam

2. ✖ Depth of the seam

3. ✔ Incubation period

4. ✖ Output required

**Question Number : 133 Question Id : 81959914368 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The pillars formed during development are split in to smaller pillars knows as

**Options :**

1. ✖ Slice

2. ✔ Stook

3. ✖ Barrier

4. ✖ Split

**Question Number : 134 Question Id : 81959914369 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

In hydraulic sand stowing the H/L ratio for a reasonable good stowing is

**Options :**

1. ✖ 6 : 1

2. ✖ 1 : 6

3. ✔ 1 : 7

4. ✖ 7 : 1

**Question Number : 135 Question Id : 81959914370 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

In sand stowing in-correct Hydraulic profile leads to

**Options :**

1. ✔ Formation of cavities in the flow

2. ✖ Damage of pipes

3. ✖ Jamming of pipes

4. ✖ Setup pulsation

**Question Number : 136 Question Id : 81959914371 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Identify INCORRECT design parameter of blasting pattern in Opencast mines

**Options :**

1. ✖ Spacing = 1.5 * Burden

2. ✖ Burden = 150 * D (D- diameter of hole in mm)

3. ✔ Length of Stemming = Burden

4. ✖ Subgrade drilling = 0.2 * Length of drill hole

**Question Number : 137 Question Id : 81959914372 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

In opencast blasting the purpose of sub-grade drilling is

**Options :**

1. ✔ To avoid the formation of toe

2. ✖ To reduce ground vibrations

3. ✖ To reduce consumption of explosive

To improve overall blasting performance

4. ✖

**Question Number : 138 Question Id : 81959914373 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which one of the following is NOT a Controlled blasting technique used in Opencast mines

**Options :**

1. ✖ Pre splitting

2. ✖ Deck charging

3. ✖ Cushion blasting

4. ✔ Cast blasting

**Question Number : 139 Question Id : 81959914374 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The following are the various parameters of an overburden blasting pattern used in opencast mine

Height of the bench (H) – 15 m

Burden (B) - 1 m

Spacing (S) – 1.5 * B

Length of subgrade drilling (s) = 0.2 * H

Number of holes blasted (n) = 20

The volume of the over burden material blasted is ____

**Options :**

1. ✖ 500 $m^3$

2. ✔ 540 $m^3$

3. ✖ 600 $m^3$

4. ✖ $650\ m^3$

**Question Number : 140 Question Id : 81959914375 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following machinery is used for side casting of overburden material

**Options :**

1. ✖ Surface Miner

2. ✔ Dragline

3. ✖ Ripper

4. ✖ Backhoe

**Question Number : 141 Question Id : 81959914376 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following is NOT a method of dragline working

**Options :**

1. ✖ Simple side casting

2. ✖ Extended bench casting

3. ✖ Tandem method of casting

4. ✔ Windrows - continuous method

**Question Number : 142 Question Id : 81959914377 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The common mode of failure of overburden dump benches is

**Options :**

1. ✖ Planar failure

2. ✔ Circular failure

3. ✖ Wedge failure

4. ✖ Toppling failure

**Question Number : 143 Question Id : 81959914378 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The following are the various parameters of the Shovel

Capacity of the bucket – 10 $m^3$

Fill factor (f ) = 0.8

Swell factor (s) = 0.6

Cycle time (t) = 60 sec

The Volume of the material carried by the Shovel per hour is __

**Options :**

1. ✖ 200 $m^3$

2. ✔ 288 $m^3$

3. ✖ 300 $m^3$

4. ✖ 380 $m^3$

**Question Number : 144 Question Id : 81959914379 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The width of the haul road depends on

**Options :**

1. ✖ Length of the dumper

2. ✔ Width of the largest vehicle moving along haul road

3. ✖ Number of dumpers moving

4. ✖ Targeted production

**Question Number : 145 Question Id : 81959914380 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which one of the following equipment is used for selective mining in opencast mines

**Options :**

1. ✖ Dragline

2. ✖ Dipper shovel

3. ✔ Hydraulic Shovel

4. ✖ Ripper

**Question Number : 146 Question Id : 81959914381 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Identify the opencast machinery contains Loading Apron

**Options :**

1. ✖ Dozer

2. ✖ Ripper

3. ✖ Grader

4. ✔ Scraper

**Question Number : 147 Question Id : 81959914382 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

In opencast mine planning the report which assess the periodical impact of mining over environment and suggest corresponding control measures is

**Options :**

1. ✖ EMP

2. ✔ EIA

3. ✖ DPR

4. ✖ Feasibility Report

**Question Number : 148 Question Id : 81959914383 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which one of the following term not related to opencast mining

**Options :**

1. ✖ Boxcut

2. ✖ Highwall

3. ✖ Crest

4. ✔ Winze

**Question Number : 149 Question Id : 81959914384 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

In an opencast bench contains two geologically disturbed planes intersect each other. The type of bench failures likely to takes place

**Options :**

1. ✖ Planar failure

2. ✖ Toppling failure

3. ✖ Circular failure

4. ✔ Wedge failure

**Question Number : 150 Question Id : 81959914385 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The size of the core sample commonly used to assess the physic mechanical properties of rock mass in laboratory is

**Options :**

1. ✔ NX

2. ✖ BX

3. ✖ AX

4. ✖ EX

**Question Number : 151 Question Id : 81959914386 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The RQD of a core sample determined in the laboratory is found to be 85%. Then corresponding description of classification of the sample is

**Options :**

1. ✖ Poor

2. ✖ Fair

3. ✔ Good

4. ✖ Excellent

**Question Number : 152 Question Id : 81959914387 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Identify the parameter which will NOT influence in determination of RMR

**Options :**

1. ✖ Joint spacing

2. ✖ Joint conditioning

3. ✖ Ground Water

4. ✔ Stress reduction factor

**Question Number : 153 Question Id : 81959914388 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The Indirect method of determination of Tensile strength of a rock specimen is

**Options :**

1. ✖ Confined Compressive strength test

2. ✖ Un-Confined compressive strength test

3. ✔ Brazilian test

4. ✖ Protodyaknov Strength Index

**Question Number : 154 Question Id : 81959914389 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The value of Shear stress along principle plane of a failure surface is

**Options :**

1. ✔ Zero

2. ✖ Minimum

3. ✖ Maximum

4. ✖ Neither maximum nor minimum

**Question Number : 155 Question Id : 81959914390 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

If the maximum amount of subsidence is at more than one location on the surface in a subsidence profile, The type of subsidence is known as

**Options :**

1. ✖ Sub Critical

2. ✖ Critical

3. ✔ Super Critical

4. ✖ Ideal subsidence

**Question Number : 156 Question Id : 81959914391 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Poisson's ratio is the ratio between

**Options :**

1. ✔ Lateral strain to Longitudinal strain

2. ✖ Lateral strain to Longitudinal stress

3. ✖ Lateral stress to Longitudinal stress

4. ✖ Lateral stress to Longitudinal strain

**Question Number : 157 Question Id : 81959914392 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

If the modulus of elasticity of a material is 180 GPa, and its Poisson's ratio is 0.8. What is the value of shear modulus of the material

**Options :**

1. ✖ 120 GPa

2. ✖ 100 Gpa

3. ✖ 75 GPa

4. ✔ 50 GPa

**Question Number : 158 Question Id : 81959914393 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which one of the following is an example of Yield prop

**Options :**

1. ✔ Friction prop

2. ✖ Wooden prop

3. ✖ Iron prop

4. ✖ Grouted roof bolt

**Question Number : 159 Question Id : 81959914394 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum**

**Instruction Time : 0**
**Correct Marks : 1 Wrong Marks : 0**

The method measurement of insitu stress at a greater depth is

**Options :**

1. ✖ Flat Jack method

2. ✔ Hydraulic fracture

3. ✖ Bore hole deformation gauge

4. ✖ Load cell

**Question Number : 160 Question Id : 81959914395 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**
**Correct Marks : 1 Wrong Marks : 0**

The instrument used to convergence of roof in a remote location of a mine

**Options :**

1. ✖ Tell tale borehole extensometer

2. ✖ Load cell

3. ✔ Remote convergence recorder

4. ✖ Bore hole deformation gauge

**Question Number : 161 Question Id : 81959914396 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**
**Correct Marks : 1 Wrong Marks : 0**

The relation between $\sigma_1$, $\sigma_2$, $\sigma_3$ incase of tri-axial test is ($\sigma_1$-axial stress, $\sigma_2$, $\sigma_3$ are lateral stresses)

**Options :**

1. ✖ $\sigma_1 = \sigma_2 = \sigma_3$

2. ✔ $\sigma_1 > \sigma_2 = \sigma_3$

3. ✖ $\sigma_1 > \sigma_2 > \sigma_3$

4. ✖ $\sigma_1 < \sigma_2 < \sigma_3$

**Question Number : 162 Question Id : 81959914397 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The type of supports used in an underground roadways used for the movement of machinery

**Options :**

1. ✖ Hydraulic prop

2. ✖ Rigid prop

3. ✔ Roof bolt

4. ✖ Friction prop

**Question Number : 163 Question Id : 81959914398 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The value of degree of saturation of rock mass under fully saturated condition is

**Options :**

1. ✔ 100%

2. ✖ 75%

3. ✖ 50%

4. ✖ 0%

**Question Number : 164 Question Id : 81959914399 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

In a linear measurement the line which is measured to locate internal objects and to avoid long offsets is

**Options :**

1. ✖ Base Line

2. ✔ Tie Line

3. ✖ Check Line

4. ✖ Offsets

**Question Number : 165 Question Id : 81959914400 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

A closed traverse ABCDEF is in the form of regular hexagon. The sum of interior angles of the traverse is

**Options :**

1. ✔ $720^{\circ}$

2. ✖ $540^{\circ}$

3. ✖ $600^{\circ}$

4. ✖ $900^{\circ}$

**Question Number : 166 Question Id : 81959914401 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The preliminary observation of area to be studied before carrying out surveying is known as

**Options :**

1. ✔ Reconnaissance

2. ✖ Topographic Survey

3. ✖ Geodetic Survey

4. ✖ Land Survey

**Question Number : 167 Question Id : 81959914402 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The process of establishment of intermediate points on a line to be measured is

**Options :**

1. ✖ Station location

2. ✔ Ranging

3. ✖ Offset

4. ✖ Alignment

**Question Number : 168 Question Id : 81959914403 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Given scale on a map is 1 cm = 50 m , then corresponding R.F ( Representative Factor) is

**Options :**

1. ✖ 1; 2000

2. ✖ 1: 3000

3. ✖ 1: 4000

4. ✔ 1: 5000

**Question Number : 169 Question Id : 81959914404 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The area on a plan is 30 $cm^2$, drawn to a scale of 1 cm = 30 m. The corresponding area on the ground is

**Options :**

1. ✖ 25000 $m^2$

2. ✔ 27000 $m^2$

3. ✖ 30000 $m^2$

4. ✖ 35000 $m^2$

**Question Number : 170 Question Id : 81959914405 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The Whole Circle Bearing (WCB) of a line is 236°. The corresponding Quadrental Bearing (QB) is

**Options :**

1. ✖ S 56° E

2. ✖ N 56° E

3. ✔ S 56° W

4. ✖ N 56° W

**Question Number : 171 Question Id : 81959914406 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The Quadrental bearing (QB) of a line is N 54° 20′ W, The corresponding Whole Circle Bearing (WCB) is

**Options :**

1. ✖ $54° 20'$

2. ✖ $123° 40'$

3. ✖ $215° 40'$

4. ✔ $305° 40'$

**Question Number : 172 Question Id : 81959914407 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The R.L of bench mark present at the entrance of a mine opening is 155 m. The back sight reading taken is 1.275. The inverted staff reading taken at a point P on the roof of a mine is 1.025 m. The R.L of P is _____

**Options :**

1. ✖ 155.3 m

2. ✔ 157.3 m

3. ✖ 160.5 m

4. ✖ 165.4 m

**Question Number : 173 Question Id : 81959914408 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which one of the following is NOT a temporary error during operation of theodolite

**Options :**

1. ✖ Error in Centering

2. ✖ Error in Leveling

3. ✖ Error in Focusing object

4. ✔ Error in vertical axis

**Question Number : 174 Question Id : 81959914409 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Bowditch rule of balancing the traverse is used under the following conditions

**Options :**

1. ✔ Angular and linear measurements are equally precise

2. ✖ Angular measurements are more precise than linear measurements

3. ✖ Only angular measurements are precise

4. ✖ Only linear measurements are precise

**Question Number : 175 Question Id : 81959914410 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The contour lines are intersect each other incase of

**Options :**

1. ✖ Hilly terrain

2. ✖ Valley

3. ✔ Over hanging cliff

4. ✖ Plain surface

**Question Number : 176 Question Id : 81959914411 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The method of leveling used to determine the gradient of the roadway

**Options :**

1. ✖ Simple leveling

2. ✖ Compound leveling

3. ✔ Differential leveling

4. ✖ Reciprocal leveling

**Question Number : 177 Question Id : 81959914412 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

In a GPS survey minimum number of satellites required for accurate positioning of a given location

**Options :**

1. ✖ 2

2. ✖ 3

3. ✔ 4

4. ✖ 6

**Question Number : 178 Question Id : 81959914413 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Remote elevation method of Total station is used for

**Options :**

1. ✖ Objects which are nearer

2. ✖ Objects which are too far

3. ✖ Objects which are visible and accessible

4. ✔ Objects which are visible and but not accessible

**Question Number : 179 Question Id : 81959914414 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

A Round stranded wire rope is represented by notation m x n, The 'm' and 'n' denotes

**Options :**

1. ✔ m - number of strands in a rope, n – number of wires in each strand

2. ✖ m – number of wires in each strand, n – number of strands in a rope

3. ✖ m – number of cores in each rope, n – number of lays in the rope

4. ✖ m - number of lays in the rope, n – number of cores in each rope

**Question Number : 180 Question Id : 81959914415 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Find ODD man out

**Options :**

1. ✖ Underground transformer

2. ✖ Drill panel

3. ✔ Underground signaling system

4. ✖ Gate end panel

**Question Number : 181 Question Id : 81959914416 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The type of ropes used as guide ropes in winding is

**Options :**

1. ✖ Round stranded rope with fiber core

2. ✔ Locked coil ropes

3. ✖ Round strand rope with wire core

4. ✖ Flat end stranded rope with fiber core

**Question Number : 182 Question Id : 81959914417 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The round stranded rope with fiber core is used in haulages having diameter 30 mm. The length of the rope used for haulage is 400 m. The mass of the rope is

**Options :**

1. ✖ 1200 kg

2. ✔ 1296 kg

3. ✖ 1320 kg

4. ✖ 1396 kg

**Question Number : 183 Question Id : 81959914418 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Identify the type of ropes which cannot spliced is

**Options :**

1. ✖ Round stranded rope with Fiber core

2. ✖ Flat end stranded rope with fiber core

3. ✖ Round stranded rope with wire core

4. ✔ Locked coil ropes

**Question Number : 184 Question Id : 81959914419 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which one of the following is NOT part of pneumatic drill

**Options :**

1. ✖ Riffle bar

2. ✖ Riffle nut

3. ✖ Pawl and rachet mechanism

4. ✔ Gear box

**Question Number : 185 Question Id : 81959914420 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The purpose of Laminscate link in a chock shield support is

**Options :**

1. ✖ To protect workings from goaf area

2. ✖ To bear the load of overlying strata acting on the face

3. ✔ To adjust the height of power support based on thickness of the seam

4. ✖ To support freshly exposed roof

**Question Number : 186 Question Id : 81959914421 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The Tractive effort of locomotive depends on

**Options :**

1. ✖ Gradient of the road way

2. ✖ Carrying capacity of Loco

3. ✔ Weight of Loco

4. ✖ Speed of the Loco

**Question Number : 187 Question Id : 81959914422 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The pit top arrangement used if the space available around the shaft is less

**Options :**

1. ✔ Turn table

2. ✖ Transverse arrangement

3. ✖ Run around system

4. ✖ Normal system

**Question Number : 188 Question Id : 81959914423 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

In friction winding over winding is prevented by

**Options :**

1. ✖ Safety hook

2. ✖ Safety catches

3. ✖ Keps

4. ✔ Tapered guide ropes

**Question Number : 189 Question Id : 81959914424 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The flame safety lamp used in Under ground coal mines is of

**Options :**

1. ✖ Intrinsically Safe

2. ✖ Flame proof

3. ✔ Neither Intrinsically safe nor Flame proof

4. ✖ Approved apparatus by the mines Manager

**Question Number : 190 Question Id : 81959914425 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The type of haulage system used incase of undulating roadway

**Options :**

1. ✖ Endless rope haulage

2. ✔ Main and tail rope haulage

3. ✖ Direct rope haulage

4. ✖ Gravity rope haulage

**Question Number : 191 Question Id : 81959914426 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The safety device used in Endless rope haulage

**Options :**

1. ✖ Run-away switch

2. ✖ Back stay

3. ✔ Monkey catch

4. ✖ Drop war wick

**Question Number : 192 Question Id : 81959914427 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Recapping of a winding rope is done to

**Options :**

1. ✖ Increase the flexural strength of the rope

2. ✖ Increase the flexibility of the rope

3. ✔ Remove the portion of the rope subjected to deterioration

4. ✖ Prevent rope from excessive rusting

**Question Number : 193 Question Id : 81959914428 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

PERT and CPM are

**Options :**

1. ✖ Manpower mapping technique

2. ✔ Network analysis techniques

3. ✖ Research and development work techniques

4. ✖ Mining activity analysis technique

**Question Number : 194 Question Id : 81959914429 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The process of setting goals and establishing guide lines to fulfill them is called

**Options :**

1. ✔ Planning

2. ✖ Supervising

3. ✖ Evaluating

4. ✖ Managing

**Question Number : 195 Question Id : 81959914430 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

ISO 14000 standards are for

**Options :**

1. ✖ Quality Management System

2. ✔ Environmental Management System

3. ✖ Administration

4. ✖ Supply chain

**Question Number : 196 Question Id : 81959914431 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

Which of the following is a principle of TQM

**Options :**

1. ✖ Product-Centered system

2. ✖ Intermittent improvement

3. ✔ Customer-focus

4. ✖ Decision made by top executives

**Question Number : 197 Question Id : 81959914432 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

A pre-requisite for a successful and efficient recruitment programme is to have

**Options :**

1. ✖ Corporate policy

2. ✖ Recruitment policy

3. ✖ Health and Safety policy

4. ✔ HR policy

**Question Number : 198 Question Id : 81959914433 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

The time by which activity completion time can be delayed without affecting start of succeeding activity

**Options :**

1. ✖ Duration

2. ✖ Total float

3. ✔ Free float

4. ✖ Interfering float

**Question Number : 199 Question Id : 81959914434 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

In a network analysis Critical activities are

**Options :**

1. ✖ Maximum float

2. ✖ Minimum float

3. ✔ Zero float

4. ✖ Negative float

**Question Number : 200 Question Id : 81959914435 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0**

**Correct Marks : 1 Wrong Marks : 0**

In a PERT network for an activity Pessimistic, Most likely, and Optimistic times are 10 days, 6 days and 2 days respectively. The expected duration of the activity is __

**Options :**

1. ✔ 6 days

2. ✖ 2 days

3. ✖ 8 days

4. ✖ 9 days