Question Paper Name:	Mining Engineering 30th April 2019 Shift1
Subject Name:	Mining Engineering
Share Answer Key With Delivery Engine:	Yes
Actual Answer Key:	Yes

	Mathematics
Number of Questions:	50
Display Number Panel:	Yes
Group All Questions:	No

Question Number : 1 Question Id : 67809437857 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The adjoint of $A = \begin{pmatrix} 1 & 4 & -2 \\ -2 & -5 & 4 \\ 1 & -2 & 1 \end{pmatrix}$ is

Options :

1. $\begin{pmatrix} 1 & 4 & -2 \\ -2 & -5 & 4 \\ 1 & -2 & 1 \end{pmatrix}$

2. $\begin{pmatrix} 1 & 4 & -2 \\ -2 & -5 & 4 \\ 1 & -2 & 1 \end{pmatrix}$

3. $\begin{pmatrix} 3 & 0 & 6 \\ 6 & 3 & 0 \\ 9 & 6 & 3 \end{pmatrix}$

4. $\begin{pmatrix} 3 & 2 & 1 \\ 4 & 1 & -1 \\ 0 & 3 & 4 \end{pmatrix}$

Question Number : 2 Question Id : 67809437858 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If A is a square matrix of order 3 then (adj A).A=

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1. [illegible]

2. $A\times(\text{adj } A)$

3. $A\text{-}(\text{adj } A)$

4. $A+(\text{adj } A)$

Question Number : 3 Question Id : 67809437859 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The inverse of $A=\begin{pmatrix}2 & 3\\ 2 & 5\end{pmatrix}$ is

Options :

1. $\begin{pmatrix}5/4 & -3/4\\ 1/2 & 1/2\end{pmatrix}$

2. $\begin{pmatrix}5/4 & 3/4\\ -1/2 & 1/2\end{pmatrix}$

3. $\begin{pmatrix}5/4 & -5/4\\ -1/2 & 1/2\end{pmatrix}$

4. $\begin{pmatrix}5/4 & -3/4\\ -1/2 & 1/2\end{pmatrix}$

Question Number : 4 Question Id : 67809437860 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $A=\begin{pmatrix}3 & 2 & x\\ 4 & 1 & -1\\ 0 & 3 & 4\end{pmatrix}$ is a singular matrix then the value of x is

Options :

1. $11/12$

2. $-11/12$

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3.

$5/4$

4.

Question Number : 5 Question Id : 67809437861 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $A=\begin{pmatrix} 3 & 1 \\ -1 & 2 \end{pmatrix}$ then $A^2 - 5A + 7I$ is

Options :

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

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

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

4. $\begin{pmatrix} 2 & 3 \\ 2 & 5 \end{pmatrix}$

Question Number : 6 Question Id : 67809437862 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Resolve $\frac{3x+7}{(x-1)(x-2)}$ into partial fractions

Options :

1. $\frac{12}{(x-2)} - \frac{10}{(x-1)}$

2. $\frac{13}{(x-2)} - \frac{10}{(x-1)}$

3. $\frac{13}{(x-5)} - \frac{10}{(x-1)}$

4. $\frac{13}{(x-2)} - \frac{10}{(x-7)}$

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Resolve $\frac{5x^4+1}{x^3-1}$ into partial fractions

Options :

1. $\frac{12}{(x-2)} - \frac{10}{(x-1)}$

2. $\frac{13}{(x-2)} - \frac{10}{(x-1)}$

3. $\frac{13}{(x-5)} - \frac{10}{(x-1)}$

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

Question Number : 8 Question Id : 67809437864 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $tan^2\theta + sec\theta = 5$ then the value of $\cos\theta$ is

Options :

1. $-1/3$ *or* $1/2$

2. $-11/12$ *or* $1/2$

3. $13/12$ or $-1/3$

4. $5/4$ *or* $1/2$

Question Number : 9 Question Id : 67809437865 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $16sin^3\theta + 8cos^3\theta$ is

Options :

1. 3

There is no correct option. All students will be given marks.

2. 1

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4. 0

Question Number : 10 Question Id : 67809437866 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $sin\alpha = {}^{15}/_{17}$, $cos\beta = {}^{12}/_{13}$ then the value of $sin(\alpha + \beta)$ is

Options :

1. ${}^{110}/_{105}$

2. ${}^{-121}/_{152}$

3. ${}^{220}/_{221}$

4. ${}^{5}/_{4}$

Question Number : 11 Question Id : 67809437867 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $cos20^0 cos40^0 cos60^0 cos80^0$ is

Options :

1. ${}^{11}/_{12}$

2. ${}^{1}/_{16}$

3. ${}^{13}/_{12}$

4. ${}^{5}/_{4}$

Question Number : 12 Question Id : 67809437868 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\frac{\cos 17^0 + \sin 17^0}{\cos 17^0 - \sin 17^0}$ is

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2. $\tan 65^0$

3. $\tan 60^0$

4. $\tan 62^0$

Question Number : 13 Question Id : 67809437869 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $sin\frac{\pi}{5}sin\frac{2\pi}{5}sin\frac{3\pi}{5}sin\frac{4\pi}{5} =$

Options :

1. $\frac{4}{15}$

2. $\frac{5}{16}$

3. $\frac{-5}{16}$

4. $\frac{7}{15}$

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Question Number : 14 Question Id : 67809437870 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $tan^{-1}x + tan^{-1}y + tan^{-1}z = \frac{\pi}{2}$ then the value of $xy + yz + zx$ is

Options :

1. -1

2. 3

3. 5

4. 1

Question Number : 15 Question Id : 67809437871 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The general solution of $4cos^2x - 3 = 0$ is

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2. $2n\pi \pm \frac{7\pi}{6}$

3. $3n\pi \pm \frac{5\pi}{6}$

4. $2n\pi \pm \frac{11\pi}{6}$

Question Number : 16 Question Id : 67809437872 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The modulus of a complex number $\sqrt{3}+i$ is

Options :

1. -2

2. 3

3. 2

4. 5

Question Number : 17 Question Id : 67809437873 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $(a-b)^2 cos^2\left(\frac{C}{2}\right)+(a+b)^2 sin^2\left(\frac{C}{2}\right)$ is

Options :

1. C^3

2. C

3. C^5

4. C^2

Question Number : 18 Question Id : 67809437874 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

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2. $-2\cos n\theta$

3. $3\cos\theta$

4. $2\sin n\theta$

Question Number : 19 Question Id : 67809437875 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $2tan^{-1}\left(\frac{1}{3}\right)+tan^{-1}\left(\frac{1}{7}\right)$ is

Options :

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

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

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

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

Question Number : 20 Question Id : 67809437876 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The length of the major axis of the ellipse: $4x^2+3y^2=48$ is

Options :

1. 10

There is no correct option. All students will be given marks.

2. 11

3. 12

4. 13

Question Number : 21 Question Id : 67809437877 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The Centre of the ellipse: $9x^2+25y^2-18x+100y-116=0$ is

Options :

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2. $(-1,-2)$

3. $(1,-2)$

4. $(1,2)$

Question Number : 22 Question Id : 67809437878 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The equation of the parabola with vertex $(2,-1)$ and focus $(2,-3)$ is

Options :

1. $x^2-4x+8y+12=0$

2. $x^2-4x-8y-12=0$

3. $x^2+4x-8y-12=0$

4. $x^2+5x-8y-11=0$

Question Number : 23 Question Id : 67809437879 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The length of the latus rectum of the hyperbola: $\frac{x^2}{9}-\frac{y^2}{16}=1$ is

Options :

1. 9 units

2. 5 units

There is no correct option. All students will be given marks.

3. 6 units

4. 13 units

Question Number : 24 Question Id : 67809437880 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the length of latus rectum is $\frac{9}{2}$ and the distance between its foci is 10 then the equation of hyperbola is

Options :

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1.

2. $\frac{x^2}{18} - \frac{y^2}{9} = 1$

3. $\frac{x^2}{16} - \frac{y^2}{6} = 1$

4. $\frac{x^2}{16} - \frac{y^2}{9} = 1$

Question Number : 25 Question Id : 67809437881 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The equation of the parabola with focus at (-3.2) and vertex (-2.2) is

Options :

1. $x^2 - 4x + 8y + 12 = 0$

2. $x^2 + 5x - 8y - 11 = 0$

3. $y^2 + 4x - 4y + 12 = 0$

4. $x^2 - 4x - 8y - 12 = 0$

Question Number : 26 Question Id : 67809437882 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $y = \frac{a+bx}{b-ax}$ then the derivative of y with respect to x is

Options :

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

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

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

4. $\frac{a+b}{(b-ax)^2}$

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If $y = \frac{2+3\sinh x}{3+2\sinh x}$ then the derivative of y with respect to x is

Options :

1. $\frac{5\cosh x}{(3+2\sinh x)^2}$

2. $\frac{5\sinh x}{(3+2\sinh x)^2}$

3. $\frac{5\sin x}{(3-2\cosh x)^2}$

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

Question Number : 28 Question Id : 67809437884 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The range of x for which the function $x^3 - 3x^2 - 45x + 2$ is increasing with x is

Options :

1. $(3,-5)$

2. $(-3,-5)$

There is no correct option. All students will be given marks.

3. $(3,5)$

4. $(-3,5)$

Question Number : 29 Question Id : 67809437885 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If u is a homogeneous function of x and y with degree n then $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y} =$

Options :

1. $-nu$

2. n^2u

3. nu

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Question Number : 30 Question Id : 67809437886 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The angle between the curves $y = x^2 + 3x - 7$ and $y^2 = 2x + 5$ at $(2,3)$ is

Options :

1. $\tan\theta = 2$

2. $\sec\theta = 2$

3. $\cos\theta = 1$

4. $\sin\theta = 3$

Question Number : 31 Question Id : 67809437887 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The maximum value of the function $2x^3 - 12x^2 + 18x + 5$ is

Options :

1. 13

2. 12

3. 10

4. 15

Question Number : 32 Question Id : 67809437888 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The three sides of a trapezium are equal each being 6" long then the area of the trapezium when it is maximum is

Options :

1. 27 square units

2. 33 square units

3. $27\sqrt{3}$ square units

4. $29\sqrt{3}$ square units

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Orientation : Vertical

The interval in which the function $f(x) = x^2 log x$ is an increasing function is

Options :

1. $(1 , e^{-1/2})$

2. $(2 , e^{-1/2})$

3. $(0 , e^{1/2})$

4. $(0 , e^{-1/2})$

Question Number : 34 Question Id : 67809437890 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The stationary points and the corresponding values of the function $f(x) = x^3 - 9x^2 + 15x - 1$ is

Options :

1. 6.-26

2. 3.-26

3. 6.26

4. -6.-26

Question Number : 35 Question Id : 67809437891 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $u = \log\left(\frac{x^2+y^2}{x+y}\right)$ then $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y} =$

Options :

1. 2

2. 4

3. 5

4. 1

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Orientation : Vertical

The value of $\int \log x \, dx$ is

Options :

1. $x \log x + x + c$

2. $x^2 \log x - x + c$

3. $x \log x - x + c$

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

Question Number : 37 Question Id : 67809437893 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\lim_{n\to\infty} \left[\frac{1}{n+1} + \frac{1}{n+2} + \cdots .. + \frac{1}{n+n}\right]$ is

Options :

1. $\log 2$

2. $\log 3$

3. $-\log 2$

4. $\log n$

Question Number : 38 Question Id : 67809437894 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\int \frac{\cos\sqrt{x}}{\sqrt{x}} dx$ is

Options :

1. $2 \sin \sqrt{x} + c$

2. $3 \sin \sqrt{x} + c$

3. $2 \sin x + c$

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Question Number : 39 Question Id : 67809437895 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The area enclosed between the curve $y^2 = 4ax$ and the line $x = 2y$ is

Options :

1. $\frac{64}{5}$ sq. units

2. $\frac{64}{3}$ sq. units

3. $\frac{65}{4}$ sq. units

4. $\frac{63}{4}$ sq. units

Question Number : 40 Question Id : 67809437896 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\int_1^{\frac{\pi}{2}} sin^2 x\, dx$ is

Options :

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

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

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

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

Question Number : 41 Question Id : 67809437897 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\int_1^4 \left(\sqrt{x} + \frac{1}{\sqrt{x}}\right) dx$ is

Options :

1. $\frac{20}{3}$

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2.

3. $\frac{10}{3}$

4. $\frac{15}{3}$

Question Number : 42 Question Id : 67809437898 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\int_0^{\pi/4} \sqrt{1+sin2x}\, dx =$

Options :

1. -1

2. -3

3. 3

4. 1

Question Number : 43 Question Id : 67809437899 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\int_0^{\pi/2} \frac{sinx}{1+cos^2x}\, dx =$

Options :

1. $\pi/4$

2. $-\pi/4$

3. $\pi/3$

4. $\pi/2$

Question Number : 44 Question Id : 67809437900 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The particular integral of $(D^2+5D+6)y = e^x$ is

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1. $\frac{}{12}$

2. $\frac{e^{2x}}{12}$

3. $\frac{e^{x}}{12}$

4. $\frac{e^{x}}{6}$

Question Number : 45 Question Id : 67809437901 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Form the differential equation by eliminating the arbitrary constant a from $ay^2 = x^3$

Options :

1. $\frac{dy}{dx} = \frac{3y}{2x}$

2. $\frac{dy}{dx} = \frac{2x}{3y}$

3. $\frac{dy}{dx} = \frac{x}{y}$

4. $\frac{dy}{dx} = \frac{2y}{x}$

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Question Number : 46 Question Id : 67809437902 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The solution of $\frac{dy}{dx} + y = e^{-x}$ is

Options :

1. $(x + c)e^{-x}$

2. $(x - c)e^{x}$

3. $(x + c)e^{x}$

4. $(x + c)e^{-2x}$

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Orientation : Vertical

The complementary function of $(D^2 + 3D + 2)y = 8sin5x$ is

Options :

1. $c_1e^{-x} + c_2e^{-2x}$

2. $c_1e^{x} + c_2e^{2x}$

3. $c_1e^{-x} + c_2e^{2x}$

4. $c_1e^{2x} + c_2e^{3x}$

Question Number : 48 Question Id : 67809437904 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The solution of exact differential equation $2xy\,dx + x^2dy = 0$ is

Options :

1. $x^2y^2 = c$

2. $x^2y = c$

3. $x^3y = c$

4. $x^2y^3 = c$

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Question Number : 49 Question Id : 67809437905 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Form the differential equation representing the family of curves $x^2 = 4ay$ .where a is any arbitrary constant

Options :

1. $x\frac{dy}{dx} - 2y = 0$

2. $x\frac{dy}{dx} + 2y = 0$

3. $x\frac{dy}{dx} - 6y = 0$

4. $x\frac{dy}{dx} - y = 0$

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Orientation : Vertical

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

Options :

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

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

3. $y \sin x = \frac{-\cos 5x}{4} + c$

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

Physics

Number of Questions:	25
Display Number Panel:	Yes
Group All Questions:	No

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Question Number : 51 Question Id : 67809437907 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In the equation $\frac{\alpha}{t^2} = Fv + \frac{\beta}{x^2}$ the dimensional formula for [α], [β] is (here t = time, F= force, v = velocity, x = distance)

Options :

1. MLT^{-1}, MLT^{-3}

2. ML^2T, ML^4T^2

3. ML^2T^{-1}, ML^4T^{-3}

4. ML^3T^{-1}, MLT^{-3}

Question Number : 52 Question Id : 67809437908 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following quantities has not been expressed in proper units?

Options :

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2. Surface tension=N/m

3. Pressure = N/m^2

4. Energy=kg m/s

Question Number : 53 Question Id : 67809437909 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Three vectors A, B and C satisfy the relation A.B=0 and A.C=0. The vector A is parallel to

Options :

1. B

2. C

3. B.C

4. BxC

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Question Number : 54 Question Id : 67809437910 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If three vectors A, B and C are 12, 5 and 13 in magnitude such that C=A+B, then the angle between A and B is

Options :

1. 60^0

2. 90^0

3. 120^0

4. 30^0

Question Number : 55 Question Id : 67809437911 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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after 3 seconds of its fall and then allowed to fall again. The time taken by the stone to reach the ground for the remaining distance is

Options :

1. 2 s

2. 6 s

3. 4 s

4. 1 s

Question Number : 56 Question Id : 67809437912 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The range of projectile fired at an angle of 15^0 is 50m. If it is fired with the same speed at an angle of 45^0, its range will be

Options :

1. 25 m

2. 37 m

3. 50 m

4. 100 m

Question Number : 57 Question Id : 67809437913 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A freely falling body acquires a velocity 'v' m/s in falling through a distance of 80m. How much further distance should it fall, so as to acquire a velocity of '2v' m/s?(Take g=10 m/s^2)

Options :

1. 240 m

2. 200 m

3. 400 m

4. 280 m

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A block is projected along a rough horizontal road with a speed of 10 m/s. If the coefficient of kinetic friction is 0.10, how far will it travel before coming to rest ?

Options :

1. 50 m

2. 60 m

3. 40 m

4. 10 m

Question Number : 59 Question Id : 67809437915 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

What force is required to push a 200 N body up a 30^0 smooth incline with an acceleration of 2 m/s^2? The force is to be applied along the plane is (Take g=10 m/s^2)

Options :

1. 40 N

2. 60 N

3. 80 N

4. 140 N

Question Number : 60 Question Id : 67809437916 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A block of mass 2 kg rests on a rough inclined plane making an angle of 30^0 with the horizontal. The coefficient of static friction between the block and the plane is 0.7. The frictional force on the block is

Options :

1. 9.8N

2. 0.78 x 9.8 N

3. 9.8 x √3 N

4. 0.7 x 9.8√3 N

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Orientation : Vertical

A man moves on a straight horizontal road with a block of mass 2 kg in his hand. If he covers a distance of 40 m with an acceleration of 0.5 m/s^2, the work done by the man on the block during the motion is (Take g=10 m/s^2)

Options :

1. 40 J

2. 1 J

3. 80 J

4. 20 J

Question Number : 62 Question Id : 67809437918 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a factory it is desired to lift 2000 kg of metal through a distance of 12 m in 1 minute. The minimum horse power of the engine to be used is

Options :

1. 3.5

2. 5.3

3. 4.3

4. 5.8

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Question Number : 63 Question Id : 67809437919 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Energy harnessed from flowing water is called -------- energy

Options :

1. Hydel

2. Solar

3. Tidal

4. Geothermal

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When a particle executing simple harmonic motion passes through the mean position, it has

Options :

1. minimum K.E and maximum P.E.

2. maximum K.E and maximum P.E.

3. maximum K.E and minimum P.E.

4. mimimum K.E. and mimimum P.E.

Question Number : 65 Question Id : 67809437921 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A particle of mass 200 g executes a simple harmonic motion. The restoring force is provided by a spring of spring constant 80 N/m. The time period is

Options :

1. 0.2 s

2. 0.41 s

3. 0.31 s

4. 0.5 s

Question Number : 66 Question Id : 67809437922 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The temperature at which the speed of sound will be double of its value at 0^0C is

Options :

1. 819^0 C

2. 850^0C

3. 919^0C

4. 900^0C

Question Number : 67 Question Id : 67809437923 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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Options :

1. The frequency of the source is increased

2. The velocity of sound in the medium is increased

3. The wavelength of sound in the medium towards the observer is decreased

4. The amplitude of vibration of the particles is increased.

Question Number : 68 Question Id : 67809437924 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A cinema hall has a volume of 7500 m^3. The total absorption in the hall if the reverberation time of 1.5 s is to be maintained is

Options :

1. 800 OWU

2. 925 OWU

3. 950 OWU

4. 825 OWU

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Question Number : 69 Question Id : 67809437925 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

One mole of oxygen is heated at constant pressure starting at 0^0C. The heat energy that must be supplied to the gas to double its volume is

Options :

1. 2.5 x 273 x R

2. 3.5 x 273 x R

3. 2.5 x 546 x R

4. 3.5 x 546 x R

Question Number : 70 Question Id : 67809437926 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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of the gas is released and the temperature of the remaining gas is raised by 30°C, the new pressure will be

Options :

1. 12.24 atm

2. 11.67 atm

3. 13.79 atm

4. 11 atm

Question Number : 71 Question Id : 67809437927 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The temperature of 5 gm of air is raised from 0^0 C to 1^0 C. The increase in the internal energy of air is (C_v = 0.172 cal/gm/ ^{0}C and J = 4.18 x 10^7 erg/cal)

Options :

1. 3.595 x 10^7 erg

2. 3 x 10^7 erg

3. 4.5 x 10^7 erg

4. 2.595 x 10^7 erg

Question Number : 72 Question Id : 67809437928 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In all reversible processes entropy of the system

Options :

1. decreases

2. increases

3. remains constant

4. remains zero

Question Number : 73 Question Id : 67809437929 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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($\gamma = 7/5$), the value of γ for the mixture is

Options :

1. 1.40

2. 1.50

3. 1.53

4. 3.07

Question Number : 74 Question Id : 67809437930 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Electrons are emitted with zero velocity from a certain metal surface when it is exposed to radiations of wavelength 7000 A^0. The work function of the metal is

Options :

1. 1 eV

2. 1.52 eV

3. 2.52 eV

4. 1.77 eV

Question Number : 75 Question Id : 67809437931 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A superconducting material exhibits

Options :

1. zero conductivity and complete diamagnetism

2. zero resistivity and complete paramagnetism

3. infinite conductivity and complete paramagnetism

4. zero resistivity and complete diamagnetism

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Question Number : 76 Question Id : 67809437932 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The splitting of spectral lines in a strong magnetic field is called

Options :

1. Stark effect

2. Pauli Exclusion Principle

3. Zeeman effect

4. Aufbau Principle

Question Number : 77 Question Id : 67809437933 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Bohr's model can explain

Options :

1. The spectrum of hydrogen atom only

2. The spectrum of hydrogen molecule

3. The solar spectrum

4. Spectrum of an atom or ion containing one electron only

Question Number : 78 Question Id : 67809437934 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. 2

2. 6

3. 10

4. 14

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Orientation : Vertical

Magnesium Atomic number is 12, which of the following is the electronic configuration

Options :

1. $1S^2\ 2S^1\ 2P^6\ 3S^2$

2. $1S^2\ 2S^2\ 2P^5\ 3S^2$

3. $1S^2\ 2S^2\ 2P^6\ 3S^2$

4. $1S^2\ 2S^2\ 2P^6\ 3S^1 3d^1$

Question Number : 80 Question Id : 67809437936 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

N_2 molecule contains

Options :

1. Covalent bond

2. Ionic bond

3. Hydrogen bond

4. Metalic bond

Question Number : 81 Question Id : 67809437937 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

One mole of any of the particles contains

Options :

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

2. $6.022X\ 10^{23}$

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

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

Question Number : 82 Question Id : 67809437938 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The normality of the solution obtained by dissolving 4 gm of NaOH in 1Litre is

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2. 0.1N

3. 0.5N

4. 0.02N

Question Number : 83 Question Id : 67809437939 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Molecular weight of H_2SO_4 is

Options :

1. 92

2. 96

3. 98

4. 99

Question Number : 84 Question Id : 67809437940 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A Lewis acid is a substance which

Options :

1. Accept protons

2. Accept a lone pair of electrons

3. Donate protons

4. Donate a lone pair of electrons

Question Number : 85 Question Id : 67809437941 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

P^H of a solution is 9.5, the solution is

Options :

1. Basic

2. Acidic

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4. Amphoteric

Question Number : 86 Question Id : 67809437942 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Laws of electrolysis were given by

Options :

1. Ostwald

2. Faraday

3. Arrhenius

4. Volta

Question Number : 87 Question Id : 67809437943 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Common electrolyte used in the salt bridge is

Options :

1. NaOH

2. $NaCO_3$

3. KCl

4. KOH

Question Number : 88 Question Id : 67809437944 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Standard Reduction Potential of an element is equal to

Options :

1. 1 X Its reduction potential

2. -1 X Its standard oxidation potential

3. -1 X Its reduction potential

4. 1 X Its standard oxidation potential

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The standard emf for the cell reaction, $Zn+Cu^{+2} \rightarrow Cu + Zn^{2+}$ is 1.10 V at 25°C. The emf of the cell reaction when 0.1 M Cu^{+2} and 0.1 M Zn^{+2} solutions are used at 25°C is

Options :

1. 1.10V
2. 0.11V
3. -1.10V
4. -0.11V

Question Number : 90 Question Id : 67809437946 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which chemical is responsible for permanent hardness of water?

Options :

1. KCl
2. $MgCl_2$
3. NaCl
4. AgCl

Question Number : 91 Question Id : 67809437947 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Permutit is chemically

Options :

1. Sodium Silicate
2. Aluminium Silicate
3. Hydrated Sodium alumino silicate
4. Calicium silicate

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Orientation : Vertical

The cation exchange resin possesses

Options :

1. Acidic group

2. Basic group

3. Amphoteric group

4. Benzo group

Question Number : 93 Question Id : 67809437949 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Chemically the rust is

Options :

1. Fe_2O_3

2. Fe_2O_3. FeO

3. $Fe_2O_3.XH_2O$

4. Fe_2O_3 . NH_3

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Question Number : 94 Question Id : 67809437950 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Galvanizing is the process of coating iron with

Options :

1. Mg

2. Cu

3. Au

4. Zn

Question Number : 95 Question Id : 67809437951 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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Options :

1. Bakelite

2. Polystyrene

3. Polythene

4. Nylon

Question Number : 96 Question Id : 67809437952 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Isoprene is a monomer of

Options :

1. Starch

2. Cellulose

3. Natural rubber

4. Lignin

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Question Number : 97 Question Id : 67809437953 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Buna-S is a copolymer of

Options :

1. Butadiene and Styrene

2. Butadiene and Acrylonitrile

3. Butadiene and Isoprene

4. Formaldehyde and Styrene

Question Number : 98 Question Id : 67809437954 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Main constituent of natural gas is

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2. Methane

3. Butane

4. Carbon Monoxide

Question Number : 99 Question Id : 67809437955 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Ozone layer is present at

Options :

1. Staratosphere

2. Inosphere

3. Thermosphere

4. Atmosphere

Question Number : 100 Question Id : 67809437956 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The amount of DO required to aerobically decompose biodegradable organic matter of a given volume of water is

Options :

1. Biochemical Oxygen Demand

2. Biological Oxygen Demand

3. Chemical Oxygen demand

4. Biomagnification

Mining Engineering

Number of Questions:	100
Display Number Panel:	Yes
Group All Questions:	No

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The rate of emission of inflammable gas (m^3) per tonne of coal raised in degree-II gassiness mines is

Options :

1. less than 1

2. 1 – 10

3. more than 50

4. 10 -50

Question Number : 102 Question Id : 67809437958 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In India, the deposit is referred as thick seam, when the thickness is _____ meters.

Options :

1. 1.5 -4.5

2. below 1.5

3. 4.5 – 9

4. more than 9

Question Number : 103 Question Id : 67809437959 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Reclamation or backfilling activity comes under the category of

Options :

1. ancillary mining operations

2. pre-mining operations

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4. actual mining operations

Question Number : 104 Question Id : 67809437960 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The technique involved in improving the concentration of mineral as per marketable demand is known as _____.

Options :

1. ore stocking

2. ore beneficiation

3. caving

4. stowing

Question Number : 105 Question Id : 67809437961 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____ is the tool used to keep the drill rods in position against falling back into the borehole in the activity of drilling.

Options :

1. bull dog safety damp

2. power winch

3. rocking lever

4. retaining key

Question Number : 106 Question Id : 67809437962 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Supply of water into drill hole during drilling operation is done for the purpose of

Options :

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2. reducing drill speed

3. protecting drill machine

4. lubrication of drill bit

Question Number : 107 Question Id : 67809437963 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Percussive manual drilling is used up to a depth of _____ meters.

Options :

1. 100

2. 30

3. 300

4. 400

Question Number : 108 Question Id : 67809437964 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____ are unsheathed explosives Ajax-G. Viking-G. Godnyte among permitted explosives.

Options :

1. P3

2. P2

3. P1

4. P5

Question Number : 109 Question Id : 67809437965 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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known as _____.

Options :

1. velocity of detonation

2. strength of explosive

3. density of explosive

4. stability of explosive

Question Number : 110 Question Id : 67809437966 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____ type of explosive consists of flashing mixture.

Options :

1. plain detonator

2. safety fuse

3. cardtex fuse

4. electric detonator

Question Number : 111 Question Id : 67809437967 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Brine solution is used in _____ method of shaft sinking.

Options :

1. freezing

2. caisson

3. piling

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Question Number : 112 Question Id : 67809437968 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Intermittent groove constructions that are erected around shaft walls for collection of local percolated water are known as _____.

Options :

1. walling scaffold

2. German tubs

3. garland curbs

4. caisson

Question Number : 113 Question Id : 67809437969 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The ratio of cement, sand and coarse aggregate in monolithic concrete lining is _____.

Options :

1. 1:4:3

2. 1:2:4

3. 1:4:2

4. 2:4:1

Question Number : 114 Question Id : 67809437970 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A rock formation with dome folding pattern can be identified by _____.

Options :

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2. U – like shapes

3. inverted bowl-like shapes

4. parallel and straight lines

Question Number : 115 Question Id : 67809437971 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The span of Conrad discontinuity that lies between SIAL and SIMA is _____ kilometers.

Options :

1. 6.4

2. 8.62

3. 5.7

4. 9.24

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Question Number : 116 Question Id : 67809437972 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The minerals which after being exposed to ultra-violet emit light are known as

Options :

1. phosphorescent

2. iridescent

3. opalescent

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Question Number : 117 Question Id : 67809437973 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The degree of transparency of mineral is known as _____.

Options :

1. Pre-schillerization

2. phosphorescence

3. schillerization

4. diaphaneity

Question Number : 118 Question Id : 67809437974 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The rock which exhibit mixed characteristics of volcanic and plutonic rocks are

Options :

1. hypabyssal rocks

2. intermediate rocks

3. mixed rocks

4. secondary rocks

Question Number : 119 Question Id : 67809437975 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The reduction of pore space and volume of sediments by the influence of overlying weight compression is known as _____.

Options :

1. cementation

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3. compaction

4. lamination

Question Number : 120 Question Id : 67809437976 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A cleavage consisting of closely spaced micro faults of fracture that divide the rock into a series of tabular bodies is known as _____

Options :

1. slaty cleavage

2. fracture cleavage

3. shear cleavage

4. bedding cleavage

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Question Number : 121 Question Id : 67809437977 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Repetition of beds on a geological map may be due to _____.

Options :

1. weathering

2. unconformity

3. folding

4. disconformity

Question Number : 122 Question Id : 67809437978 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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Options :

1. Copper and zinc

2. copper and tin

3. copper and tungsten

4. zinc and silver

Question Number : 123 Question Id : 67809437979 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The dissemination deposits were formed under the process of

Options :

1. magmatic concentration

2. hydro thermal process

3. contact metasomatism

4. sublimation

Question Number : 124 Question Id : 67809437980 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Wenner method of resistivity prospecting with electrodes comes under the category of _____.

Options :

1. gravity prospectiong

2. seismic prospecting

3. electrical prospecting

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1.

Question Number : 125 Question Id : 67809437981 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Hydrothermal deposits, which are formed at great depths near the intrusive and within the temperature range of 300°c to 500°c are called _____.

Options :

1. syngenetic deposits

2. hypothermal deposits

3. epithermal deposits

4. mesothermal deposits

Question Number : 126 Question Id : 67809437982 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Goaf treatment of either stowing or caving must be done whenever the area of goaf exceeds _____ square meters.

Options :

1. 95

2. 145

3. 100

4. 110

Question Number : 127 Question Id : 67809437983 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The percentage of extraction corresponding to one pillar in Bord & Pillar development when the size of pillar is 35 x 35 meters and the width of gallery is 4 meters is _____.

Options :

1. 22.51%

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3. 19.46%

4. 25.13%

Question Number : 128 Question Id : 67809437984 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The type of conveyor system that is laid across the mechanized Longwall working face is _____.

Options :

1. armored face conveyor

2. trunk belt conveyor

3. sandwich conveyor

4. gate belt conveyor

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Question Number : 129 Question Id : 67809437985 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the gate belt conveyor serves for the production from two working faces on either sides of it, then such arrangement is known as

Options :

1. single-unit longwall face

2. double-unit longwall face

3. triple unit longwall face

4. mechanized longwall face

Question Number : 130 Question Id : 67809437986 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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conjunction with _____ of extraction.

Options :

1. ascending order

2. mixed order

3. descending order

4. single order

Question Number : 131 Question Id : 67809437987 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In horizontal slicing, slices are taken parallel to _____.

Options :

1. Surface

2. footwall

3. hanging wall

4. dip of ore body

Question Number : 132 Question Id : 67809437988 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The quantity of explosive that is required per hole in ring hole drilling of blasting gallery method is _____kilograms.

Options :

1. 5-6

2. 1-2

3. 4-5

4. 2-3

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The best suitable actual internal method of extraction adopted with horizon mining method is _____.

Options :

1. Bord and Pillar Method

2. Longwall Mining Method

3. Room and Pillar Method

4. Blasting Gallery Method

Question Number : 134 Question Id : 67809437990 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Bucket wheel excavator essentially consists of 3 sets of crawler track, among which _____ number of sets acts as steering crawler.

Options :

1. 2

2. 3

3. 1

4. 0

Question Number : 135 Question Id : 67809437991 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____ is the modern surface mining equipment that can effectively make undercut by travelling over the same strata.

Options :

1. Dragline

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3. bucket wheel excavator

4. load haul dumper

Question Number : 136 Question Id : 67809437992 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The interval between any two consecutive ore passes should not exceed _____ meters.

Options :

1. 150

2. 200

3. 125

4. 135

Question Number : 137 Question Id : 67809437993 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The driving rate of _____ meters per day with 2 shift of operation can be achieved through Jora raising method.

Options :

1. 2-4

2. 5-6

3. 6-8

4. 4-5

Question Number : 138 Question Id : 67809437994 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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The raise in percentage of volume of broken ore in shrinkage stopping is nearly _____.

Options :

1. 5-10

2. 45-65

3. 50-60

4. 30-40

Question Number : 139 Question Id : 67809437995 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The stoping method involved in drilling of long holes right from upper level to lower level directly is _____ method.

Options :

1. sub-level stoping

2. vertical crater retreating

3. breast stoping

4. shrinkage stoping

Question Number : 140 Question Id : 67809437996 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In channel sampling. the channel (groove) is driven of _____ inches wide and 0.75 inches deep.

Options :

1. 4

2. 6

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4. 5

Question Number : 141 Question Id : 67809437997 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The method involved in reduction of bulk samples by dividing the same into 4 equal halves and selecting two opposite halves for next stage of reduction is

Options :

1. coning and quartering technique

2. chip sampling

3. channel sampling

4. salting

Question Number : 142 Question Id : 67809437998 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In case of local fall, the overlying sandstone will consume around _____ hours to fall down after removal of supports.

Options :

1. 48-72

2. 24-48

3. 01-24

4. up to 1 week

Question Number : 143 Question Id : 67809437999 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Flat jack is a load measuring instrument that can count _____ kgf/cm^2.

Options :

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2. 320

3. 600

4. 475

Question Number : 144 Question Id : 67809438000 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Angle of draw is the angle between subsidence limit line and _____.

Options :

1. horizontal line

2. dip line

3. vertical line

4. strike line

Question Number : 145 Question Id : 67809438001 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the RQD value is 50-75, then the condition of that rock sample is

Options :

1. poor

2. very poor

3. excellent

4. fair

Question Number : 146 Question Id : 67809438002 Display Question Number : Yes Single Line Question Option : No Option

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Options :

1. $33.5^{O}C$

2. 42^{O} C

3. 26.5^{O} C

4. 31^{O} C

Question Number : 147 Question Id : 67809438003 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The temperatures in downcast and up cast shafts are 28^{O} and 38^{O} respectively with the depth of 400 meters. The length of motive column is _____ meters.

Options :

1. 13.2

2. 15.6

3. 12.8

4. 10.2

Question Number : 148 Question Id : 67809438004 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

According to fan Law-3. the power required to drive a fan working on a given mine resistance varies directly proportional as the cube of _____.

Options :

1. humidity in air

2. temperature of air

3. quality of air

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Question Number : 149 Question Id : 67809438005 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The evasee of a fan has an area of 4 m^2 at the base and 10 m^2 at the outlet. When the output of fan is 6000 m^3/min, the saving in water gauge in mm due to evasee will approximately be equal to _____.

Options :

1. 50

2. 45

3. 32

4. 26

Question Number : 150 Question Id : 67809438006 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In case of solid blasting at degree III gassy mine, the air quantity required at last ventilation connection of the district should not be less than _____m^3/min when the coursing of air is done by auxiliary ventilator & assuming no leakages of air through duct.

Options :

1. 284

2. 200

3. 568

4. 350

Question Number : 151 Question Id : 67809438007 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The position in underground where there is no drop or raise in pressure between intake and return airways is known as _____.

Options :

1. neutral line

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3. dip line

4. strike line

Question Number : 152 Question Id : 67809438008 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The required rated voltage of D6 Methanometer to check the percentage of CH_4 is _____ volts.

Options :

1. 5.5-12.0

2. 1.5-2.4

3. 4.4-6.2

4. 2.2-2.8

Question Number : 153 Question Id : 67809438009 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The stock of coal should not exceed _____ tonnes without exceeding critical height of 1.5 to 3 meters.

Options :

1. 200

2. 420

3. 150

4. 250

Question Number : 154 Question Id : 67809438010 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

398^{O} is the ignition temperature of _____ type of coal.

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1.

2. sub-bituminous

3. anthracite

4. lignite

Question Number : 155 Question Id : 67809438011 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The resistance of two parallel paths are 4 unit & 9 unit. The equivalent resistance of two paths will be _____ units.

Options :

1. 13

2. 36/13

3. 13/36

4. 36/25

Question Number : 156 Question Id : 67809438012 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____ shows the amount of stone dust to be added to the coal dust to make it non explosive in nature.

Options :

1. index of ignitability

2. index of wettability

3. index of explosibility

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4.

Question Number : 157 Question Id : 67809438013 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The working face approaching old abandoned workings should be stopped at a distance of _____ meters.

Options :

1. 75

2. 90

3. 50

4. 60

Question Number : 158 Question Id : 67809438014 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The lower limit of methane _____with increase in air-borne coal dust concentration from zero to lower limit of flammability of coal dust.

Options :

1. decreases

2. remain same

3. initially decreases and then increases.

4. increases

Question Number : 159 Question Id : 67809438015 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Protosorb is the catalyst that is used to absorb _____ in self-contained breathing apparatus.

Options :

1. CO_2

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3. CO

4. H_2SO_4

Question Number : 160 Question Id : 67809438016 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Pneumoconiosis is caused by _____ particles in the mine air environment.

Options :

1. dust containing free crystalline silica

2. radon

3. asbestos fibres

4. non-fibrogenous dust

Question Number : 161 Question Id : 67809438017 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Plane surveying is used, where the areas are less than _____ square kilometers.

Options :

1. 295

2. 260

3. 300

4. 250

Question Number : 162 Question Id : 67809438018 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In cadastral surveying, the boundaries of will be determined

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1. estates or houses

2. lakes or rivers

3. bridges or roads

4. sanitary sewers

Question Number : 163 Question Id : 67809438019 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____ is the line laid by joining the apex of triangle to any point on the opposite side or by joining two points on any two sides of triangle.

Options :

1. tie line

2. base line

3. offset

4. check line

Question Number : 164 Question Id : 67809438020 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A 20 meters chain which is 20 centimeters too short was used to measure a line and the result was 196.1 meters. The true length of the same line is

Options :

1. 191.61

There is no correct option. All students will be given marks.

2. 190.27

3. 189.74

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Question Number : 165 Question Id : 67809438021 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the surveyor's metric chain is made with 127 links, then the length of that

chain with standard link dimensions of metric chain is _____ meters.

Options :

1. 20.6

2. 22.8

3. 25.4

4. 19.6

Question Number : 166 Question Id : 67809438022 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The least count of prismatic compass is _____.

Options :

1. 10 seconds

2. 30 minutes

3. 30 seconds

4. 20 minutes

Question Number : 167 Question Id : 67809438023 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the quadrant or reduced bearing is N 27° 15'45" W, then the whole circle bearing is _____.

Options :

1. $352^{O}45'15"$

There is no correct option. All students will be given marks.

2. $353^{O}44'15"$

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352°44'15"

4.

Question Number : 168 Question Id : 67809438024 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Find out the interior angle B with the below given data

Line	Fore Bearing	Back Bearing
AB	N 45° 30' E	S 45° 30' W
BC	S 60° 00' E	N 60° 00' W

Options :

1. 225°30'

2. 105°30'

3. 150°00'

4. 15°30'

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Question Number : 169 Question Id : 67809438025 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The line of collimation of dumpy level is always perpendicular to

Options :

1. axis of bubble tube

2. vertical axis

3. axis of telescope

4. vertical plane

Question Number : 170 Question Id : 67809438026 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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Bench mark is 2.65. then the height of instrument is _____ meters.

Options :

1. 152.15

2. 155.85

3. 155.15

4. 157.85

Question Number : 171 Question Id : 67809438027 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The process involved in rotating the telescope about its horizontal axis through 180^{O} in the vertical plane is known as _____.

Options :

1. transiting

2. traversing

3. ranging

4. swinging

Question Number : 172 Question Id : 67809438028 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The permissible error of closure for surface polygon traverse with theodolite survey is _____.

Options :

1. 1 in 2500

2. 1 in 3000

3. 1 in 3500

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Question Number : 173 Question Id : 67809438029 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If one curve runs into another curve with same tangent and with their centers on opposite sides, then it is termed as _____.

Options :

1. summit curve

2. compound curve

3. valley curve

4. reverse curve

Question Number : 174 Question Id : 67809438030 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The tangent distance is 15.8 meters and the tangent offset is 8.7 meters. The length of chord is _____ meters.

Options :

1. 16.429

2. 18.036

3. 18.487

4. 19.870

Question Number : 175 Question Id : 67809438031 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the staff intercept is 1.875 m and multiplying constant. additive constants are 101. 01 respectively. Then the distance between instrument station and the target point is _____ m.

Options :

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2. 192.455 m

3. 190.375 m

4. 190.435 m

Question Number : 176 Question Id : 67809438032 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The percentage of silicon used in manufacturing mine wire ropes is

Options :

1. 0.50

2. 0.11

3. 0.48

4. 0.033

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Question Number : 177 Question Id : 67809438033 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The melting temperature of white metal that is used to pour in coned socket for the purpose of rope capping is _____.

Options :

1. 365^{O} C

2. 350^{O} C

3. 355^{O} C

4. 385^{O} C

Question Number : 178 Question Id : 67809438034 Display Question Number : Yes Single Line Question Option : No Option

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Options :

1. 5-6

2. 4-5

3. 6-8

4. 8-12

Question Number : 179 Question Id : 67809438035 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The limiting gradient of normal type of belt conveyors used in mines is

Options :

1. 1 in 8

2. 1 in 6

3. 1 in 2

4. 1 in 5

Question Number : 180 Question Id : 67809438036 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The processed air from diesel locomotive's exhaust conditioner is allowed to mix with _____ times to it's volume of fresh air before leaving into normal environment.

Options :

1. 20-25

2. 40-50

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4. 30-40

Question Number : 181 Question Id : 67809438037 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Bi-cable aerial ropeways are suitable for capacities of _____ tonnes/hour.

Options :

1. 400-500

2. 50-100

3. 100-400

4. 500 and above

Question Number : 182 Question Id : 67809438038 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The working efficiency of reciprocating pump is _____ %.

Options :

1. 80-85

2. 50-60

3. 60-70

4. 70-75

Question Number : 183 Question Id : 67809438039 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The articulated joint provided in load haul dumper can provide a swivel of _____ during turnings.

Options :

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1.

2. 90°

3. 45°

4. 100°

Question Number : 184 Question Id : 67809438040 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The average operating rotational speed of cutting drum of shearer varies from _____ RPM.

Options :

1. 10-20

2. 50-60

3. 30-45

4. 20-25

Question Number : 185 Question Id : 67809438041 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

All the electric equipment in underground mines should be equipped with flame proof construction where the operating voltage is more than _____ volts.

Options :

1. 125

2. 30

3. 50

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4.

Question Number : 186 Question Id : 67809438042 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

As per codes of signaling, three raps of signal tell the tubs to

Options :

1. start when at rest

2. stop when in motion

3. lower or haul in slowly

4. raise and haul out slowly

Question Number : 187 Question Id : 67809438043 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The single core electric cables in mines are used for supply voltage up to

Options :

1. 66kv

2. 33kv

3. 33-66kv

4. 1kv

Question Number : 188 Question Id : 67809438044 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The diameter of groove of the head gear pulley in winding system should be _____ % of rope diameter in case of locked coil ropes.

Options :

1. 110

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3. 105

4. 100

Question Number : 189 Question Id : 67809438045 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In cage suspension gear. _____ is laid between rope detaching hook and bull chains.

Options :

1. pulley

2. rope capel

3. cheese weights

4. distributing plate

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Question Number : 190 Question Id : 67809438046 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Dynamic braking comes under the category of _____ braking in mine winding systems.

Options :

1. electric

2. mechanical

3. electronic

4. pneumatic

Question Number : 191 Question Id : 67809438047 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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latrines shall be provided at convenient point.

Options :

1. 100

2. 50

3. 120

4. 60

Question Number : 192 Question Id : 67809438048 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Whenever there occurs any accidents in mine causing reportable injuries, the manager or owner or agent shall enter in a prescribed form and copy shall be furnished to chief inspector once every _____.

Options :

1. half year

2. year

3. quarter year

4. month

Question Number : 193 Question Id : 67809438049 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The height of manhole in haulage way shall not be less than _____ meters.

Options :

1. 1.8

2. 1.5

3. 1

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Question Number : 194 Question Id : 67809438050 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In case of below ground workings, the manager shall visit and examine the workings below ground on at least _____ days in every week to see that safety aspects ensured.

Options :

1. 5

2. 3

3. 2

4. 4

Question Number : 195 Question Id : 67809438051 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Efficient telescopic communication shall be provided whenever the haulage roadway exceeds to a distance of more than _____ meters from the shaft or entrance to the workings.

Options :

1. 1000

2. 600

3. 350

4. 500

Question Number : 196 Question Id : 67809438052 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

While working within 30 meters to the abandoned mine which is likely to contain inflammable or noxious gasses, at least one bore hole not less than _____ meters in advance of workings should be maintained.

Options :

1. 3

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3. 1.5

5

4.

Question Number : 197 Question Id : 67809438053 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A person shall not be qualified for appointment as the presiding officer of the tribunal, unless he is or he has been a _____.

Options :

1. judge of high court

2. lawyer in high court

3. union leader

4. conciliation officer

Question Number : 198 Question Id : 67809438054 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____ are the inputs of management activity.

Options :

1. organizing and directing

2. goods and services

3. co-ordinating and controlling

4. men and material

Question Number : 199 Question Id : 67809438055 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Self-properties and borrowed funds from banks for interest come under

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1.

2. financial risks

3. personal risks

4. other risks

Question Number : 200 Question Id : 67809438056 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____ is the model for quality assurance in final inspection and test.

Options :

1. ISO 9004

2. ISO 9000

3. ISO 9002

4. ISO 9003

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