Question Paper Name:	Mining Engineering	
Subject Name:	Mining Engineering	

Mathematics

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

Question Number : 1 Question Id : 67809418624 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $A = \begin{pmatrix} 2 & -1 & 0 \\ 3 & 4 & 7 \end{pmatrix}$ and $B = \begin{pmatrix} 5 & 2 & -3 \\ 1 & 0 & -2 \end{pmatrix}$ then $2A+3B =$

Options :

1. $\begin{pmatrix} 19 & 4 & -9 \\ 9 & 8 & 8 \end{pmatrix}$

2. $\begin{pmatrix} -19 & -4 & 9 \\ 9 & 8 & -8 \end{pmatrix}$

3. $\begin{pmatrix} 18 & 4 & -9 \\ 9 & 8 & 8 \end{pmatrix}$

4. $\begin{pmatrix} 17 & 5 & -9 \\ 8 & 8 & 9 \end{pmatrix}$

Question Number : 2 Question Id : 67809418625 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $A = \begin{pmatrix} 2 & -3 & 0 \\ 1 & 4 & -1 \end{pmatrix}$ and $B = \begin{pmatrix} 6 & 1 \\ 3 & 0 \\ 5 & 2 \end{pmatrix}$ then $(AB)^T =$

Options :

1. $A^T B^T$

2. $B^T A^T$

3. $(BA)^T$

4. AB^T

Question Number : 3   Question Id : 67809418626   Display Question Number : Yes   Single Line Question Option : No   Option Orientation : Vertical

If two rows or two columns of a determinant are identical then the value of the determinant is

Options :

1. 2

2. -1

3. 0

4. -2

Question Number : 4   Question Id : 67809418627   Display Question Number : Yes   Single Line Question Option : No   Option Orientation : Vertical

The value of $\begin{vmatrix} 265 & 240 & 219 \\ 240 & 225 & 198 \\ 219 & 198 & 181 \end{vmatrix}$ is

Options :

1. -1

2. 0

3. 1

4. 2

Question Number : 5   Question Id : 67809418628   Display Question Number : Yes   Single Line Question Option : No   Option Orientation : Vertical

The adjoint of the square matrix $A = \begin{pmatrix} 2 & 5 & 1 \\ 3 & 1 & 2 \\ 4 & 3 & 1 \end{pmatrix}$ is

Options :

1. $\begin{pmatrix} -5 & -2 & 9 \\ 5 & -2 & -1 \\ 5 & 14 & -13 \end{pmatrix}$

2. $\begin{pmatrix} 5 & 2 & 9 \\ 5 & -2 & -1 \\ 5 & 14 & -13 \end{pmatrix}$

3. $\begin{pmatrix} -5 & -2 & 9 \\ -5 & -2 & -1 \\ -5 & 14 & -13 \end{pmatrix}$

4. $\begin{pmatrix} -5 & -2 & -9 \\ 5 & 2 & 1 \\ 5 & 14 & -13 \end{pmatrix}$

Question Number : 6 Question Id : 67809418629 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Resolve into partial fractions: $\dfrac{5}{(2x-1)(3x-1)} =$

Options :

1. $\dfrac{8}{2x-1} + \dfrac{5}{3x-1}$

2. $\dfrac{10}{2x-1} - \dfrac{15}{3x-1}$

3. $\dfrac{11}{3x-1} + \dfrac{7}{2x-1}$

4. $\dfrac{1}{2x-1} + \dfrac{2}{3x-1}$

Question Number : 7 Question Id : 67809418630 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Resolve into partial fractions: $\dfrac{3x-1}{(x-1)(x-2)(x-3)} =$

Options :

1. $\dfrac{2}{x-1} + \dfrac{5}{x-2} - \dfrac{4}{x-3}$

2. $\dfrac{-1}{x-1} + \dfrac{5}{x-2} - \dfrac{4}{x-3}$

3. $\dfrac{1}{x-1} + \dfrac{5}{x-2} + \dfrac{4}{x-3}$

4. $\dfrac{1}{x-1} - \dfrac{5}{x-2} + \dfrac{4}{x-3}$

Question Number : 8 Question Id : 67809418631 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $\tan A = \dfrac{1}{2}$ and $\tan B = \dfrac{1}{3}$ then $\tan(A - B) =$

Options :

1. $\dfrac{1}{7}$

2. $\dfrac{-1}{7}$

3. $\dfrac{1}{5}$

4. $\dfrac{1}{3}$

Question Number : 9 Question Id : 67809418632 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\cot 2A + \tan A =$

Options :

1. $\sin 2A$

2. $\cos 2A$

3. $\sec 2A$

4. $\csc 2A$

Question Number : 10 Question Id : 67809418633 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\dfrac{1-\cos 2A+\sin 2A}{1+\cos 2A+\sin 2A} =$

Options :

1. $\sin A$

2. $\cos A$

3. $\tan A$

4. $\cot A$

Question Number : 11 Question Id : 67809418634 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

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

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

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

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

Question Number : 12 Question Id : 67809418635 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\cos 20^0 + \cos 100^0 + \cos 140^0 =$

Options :

1. 0

2. 3

3. 1

4. -3

Question Number : 13 Question Id : 67809418636 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\sum a(b^2 + c^2)\cos A$ is

Options :

1. $2abc$

2. $4abc$

3. $3abc$

4. $5abc$

Question Number : 14 Question Id : 67809418637 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 : 15 Question Id : 67809418638 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. $\pi/4$

2. $\pi/2$

3. $\pi/6$

4. $\pi/3$

Question Number : 16 Question Id : 67809418639 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. $2n\pi \pm \dfrac{\pi}{6}$

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

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

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

Question Number : 17 Question Id : 67809418640 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. -1

2. 3

3. 5

4. 1

Question Number : 18 Question Id : 67809418641 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 : 19 Question Id : 67809418642 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

Options :

1. $2\cos n\theta$

2. $-2\cos n\theta$

3. $3\cos\theta$

4. $2\sin n\theta$

Question Number : 20 Question Id : 67809418643 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The centre of the circle: $x^2 + y^2 - 2x + 6y - 6 = 0$ is

Options :

1. $(1,3)$

2. $(2,3)$

3. $(1,-3)$

4. $(-1,3)$

Question Number : 21 Question Id : 67809418644 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The radius of the circle: $5x^2 + 5y^2 - 6x + 8y - 75 = 0$ is

Options :

1. -4

2. 4

3. 2

4. 3

Question Number : 22 Question Id : 67809418645 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 : 67809418646 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 :

1. $(2, -1)$

2. $(-1, -2)$

3. $(1, -2)$

4. $(1, 2)$

Question Number : 24 Question Id : 67809418647 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The focus of the hyperbola: $\dfrac{x^2}{25} - \dfrac{y^2}{144} = 1$ is

Options :

1. $(-13, 0)$

2. $(13, 0)$

3. $(13, -1)$

4. $(13, 1)$

Question Number : 25 Question Id : 67809418648 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

2. 11

3. 8

4. 13

Question Number : 26 Question Id : 67809418649 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. 3

2. -3

3. 2

4. 1

Question Number : 27 Question Id : 67809418650 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. $\frac{a+b}{(b-ax)^2}$

Question Number : 28 Question Id : 67809418651 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $y = x^3 e^x$ then $\frac{dy}{dx}$ is

Options :

1. $(x-3)x^2 e^x$

2. $(x-2)x^3 e^x$

3. $(x+3)x^2 e^x$

4. $(x-1)x^3 e^x$

Question Number : 29 Question Id : 67809418652 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $y = \sec x + \tan x$ then $\frac{dy}{dx}$ is

Options :

1. $y \cos x$

2. $y \sec x$

3. $-y \sin x$

4. $y \tan x$

Question Number : 30 Question Id : 67809418653 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Question Number : 31 Question Id : 67809418654 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $y = \sqrt{\dfrac{1-\cos x}{1+\cos x}}$ then $\dfrac{dy}{dx}$ is

Options :

1. $\sec^2\left(\dfrac{x}{2}\right)$

2. $\cos^2\left(\dfrac{x}{2}\right)$

3. $\dfrac{1}{2}\cos^2\left(\dfrac{x}{2}\right)$

4. $\dfrac{1}{2}\sec^2\left(\dfrac{x}{2}\right)$

Question Number : 32 Question Id : 67809418655 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 : 33 Question Id : 67809418656 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. $(-3, -5)$

3. $(3, 5)$

4. $(-3, 5)$

Question Number : 34 Question Id : 67809418657 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 : 35 Question Id : 67809418658 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 $x\dfrac{\partial u}{\partial x} + y\dfrac{\partial u}{\partial y} =$

Options :

1. $-nu$

2. $n^2 u$

3. nu

4. $nu^2 + u$

Question Number : 36 Question Id : 67809418659 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

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

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

3. $2 \sin x + c$

4. $\sin \sqrt{x} + c$

Question Number : 37 Question Id : 67809418660 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\int \frac{dx}{\sqrt{a^2 - x^2}}$ is

Options :

1. $\cos^{-1}\left(\frac{x}{a}\right) + c$

2. $\sin^{-1}\left(\frac{x}{a}\right) + c$

3. $\sinh^{-1}\left(\frac{x}{a}\right) + c$

4. $\sin^{-1}\left(\frac{a}{x}\right) + c$

Question Number : 38 Question Id : 67809418661 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\int \frac{dx}{4x^2 + 4x + 17}$ is

Options :

1. $\frac{1}{8} \tan^{-1}\left(\frac{2x+1}{4}\right) + c$

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

3. $\frac{1}{8} \sin^{-1}\left(\frac{2x+1}{4}\right) + c$

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

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

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

Options :

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

2. $-\dfrac{20}{3}$

3. $\dfrac{10}{3}$

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

The value of $\int_0^{\pi/2} \sin^2 x \, dx$ is

Options :

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

www.manaresults.co.in

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

$$\frac{\pi}{6}$$

3.

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

4.

Question Number : 42 Question Id : 67809418665 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 : 43 Question Id : 67809418666 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 : 44 Question Id : 67809418667 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. $\dfrac{dy}{dx} = \dfrac{3y}{2x}$

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

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

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

Question Number : 45 Question Id : 67809418668 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The solution of $\sqrt{1-y^2}\,dx + \sqrt{1-x^2}\,dy = 0$ is

Options :

1. $\cos^{-1} x + \cos^{-1} y = c$

2. $\sinh^{-1} x + \cosh^{-1} y = c$

3. $\cos^{-1} x + \sec^{-1} x = c$

4. $\sin^{-1} x + \sin^{-1} y = c$

Question Number : 46 Question Id : 67809418669 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The solution of $\dfrac{dy}{dx} = (4x + y + 1)^2$ is

Options :

1. $\dfrac{1}{2}\tan^{-1}\left(\dfrac{4x+y+1}{2}\right) = x + c$

2. $\dfrac{1}{2}\cot^{-1}\left(\dfrac{4x+y+1}{2}\right) = x + c$

3. $-\dfrac{1}{2}\tan^{-1}\left(\dfrac{4x+y+1}{2}\right) = x + c$

$$\frac{1}{2}\tan^{-1}\left(\frac{4x-y-1}{2}\right) = x + c$$

4.

Question Number : 47 Question Id : 67809418670 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. $x^2y^3 = c$

Question Number : 48 Question Id : 67809418671 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. $(x + c)e^{-2x}$

Question Number : 49 Question Id : 67809418672 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. $\frac{-e^{-x}}{12}$

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

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

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

Question Number : 50 Question Id : 67809418673 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. $c_1 e^{-x} + c_2 e^{-2x}$

2. $c_1 e^x + c_2 e^{2x}$

3. $c_1 e^{-x} + c_2 e^{2x}$

4. $c_1 e^{2x} + c_2 e^{3x}$

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

Question Number : 51 Question Id : 67809418674 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following is not the unit of energy?

Options :

1. watt second

2. Pascal metre

www.manaresults.co.in

3. Newton metre

4. Kilowatt hour

Question Number : 52 Question Id : 67809418675 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The height of Mercury barometer is 76 cm and density of Mercury is 13.6 g/cc. The

corresponding height of water barometer in SI system is

Options :

1. 10.336 m

2. 103.36 m

3. 3.6m

4. 1.0336 m

Question Number : 53 Question Id : 67809418676 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Angle made by the vector $(\sqrt{3}\ \vec{i} + \vec{j})$ with the X-axis is

Options :

1. $\pi/2$

2. $\pi/4$

3. $\pi/3$

4. $\pi/6$

Question Number : 54 Question Id : 67809418677 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The minimum number of unequal forces in a plane that can keep a particle in equilibrium is

Options :

1. 4

2. 2

3. 3

4. 6

Question Number : 55 Question Id : 67809418678 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A body is thrown with a velocity of $(4\bar{i} + 3\bar{j})$ m/s. The maximum height attained by

the body is (g=10 ms^{-2})

Options :

1. 2.5 m

2. 4.5 m

3. 0.8 m

4. 0.45 m

Question Number : 56 Question Id : 67809418679 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A person in a lift, which ascends up with acceleration 10ms^{-2}, drops a stone from a height of

10m. The time of descent is (g=10 ms^{-2})

Options :

1. 0.5 s

2. 1 s

3. 1.5 s

4. 2 s

Question Number : 57 Question Id : 67809418680 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For a projectile, the ratio of maximum height reached to the square of time of flight is

Options :

1. 5:4

2. 5:2

3. 5:1

4. 10:1

Question Number : 58 Question Id : 67809418681 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The ratio of distances travelled by a body, starting from rest and travelling with uniform

acceleration, in successive intervals of time of equal duration will be

Options :

1. 1:2:3

2. 1:4:9

3. 1:3:5

4. 1:9:16

Question Number : 59 Question Id : 67809418682 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A force of 12 N acts on a body of mass 4 kg placed on a rough surface. The coefficient of

friction between body and surface is 0.2 and take g= 10 ms^{-2}. The acceleration of the body in

ms^{-2} is

Options :

1. 1

2. 0.5

3. 0.25

4. Zero

Question Number : 60 Question Id : 67809418683 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Brakes stop a train in a certain distance d. When the braking force is made one fourth, the

brakes will stop the train in a distance which is

Options :

1. d/2

2. 4d

3. 2d

4. d

Question Number : 61 Question Id : 67809418684 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The product of linear momentum and velocity of a body represents

Options :

1. Kinetic energy of the body

2. Potential energy of the body

3. Half the Kinetic energy of the body

4. Twice the kinetic energy of the body

Question Number : 62 Question Id : 67809418685 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A man weighing 60 kg eats plum cake whose energy content is 9800 calories. If all this

energy could be utilised by him, he can ascend to a height of

Options :

1. 17 m

2. 100 m

3. 70 m

4. 60m

Question Number : 63 Question Id : 67809418686 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A crane can lift up 10,000 kg of coal in 1 hour from a mine of depth 180m. If the efficiency of

the crane is 80%, its input power must be (g=10 ms^{-2})

Options :

1. 62.5 kW

2. 6.25 kW

3. 50 kW

4. 5 kW

Question Number : 64 Question Id : 67809418687 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The graph of acceleration as a function of displacement in the case of a body executing

simple harmonic motion is

Options :

1. Parabola

2. Hyperbola

3. Straight line with positive slope

4. Straight line with negative slope

Question Number : 65 Question Id : 67809418688 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The pendulum of length 'L' swings from mean position to mean position 'n' times in one

second.The value of acceleration due to gravity is

Options :

1. $\pi^2 n^2 L$

2. $2\pi^2 n^2 L$

3. $(\pi^2 n^2 L)/2$

4. $4\pi^2 n^2 L$

Question Number : 66 Question Id : 67809418689 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When a source of sound is in motion towards a stationary observer, the effect observed is

Options :

1. Decrease in velocity of sound

2. Increase in velocity of sound

3. increase in frequency of sound

4. decrease in frequency of sound

Question Number : 67 Question Id : 67809418690 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The voice of a male person is different from that of a female person because

Options :

1. Two sounds have different phases

2. Two persons are of different size

3. Two sounds travel with different velocities

4. Two sounds have different pitch

Question Number : 68 Question Id : 67809418691 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the sound absorption of a hall is changed by 2%, then the percentage change in the

reverberation time is

Options :

1. 2%

2. 4%

3. 1%

4. No change

Question Number : 69 Question Id : 67809418692 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In which of the following process, the internal energy of the system remains constant?

Options :

1. Adiabatic

2. Isothermal

3. Isobaric

4. Isochoric

Question Number : 70 Question Id : 67809418693 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Heat required to raise the temperature of one gram of water through 1 K is

Options :

1. 1.0 Kcal

2. 0.1 Kcal

3. 0.01 Kcal

4. 0.001 Kcal

Question Number : 71 Question Id : 67809418694 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The specific heat of a gas in an isothermal process is

Options :

1. infinity

2. Zero

3. Finite positive

4. Finite negative

Question Number : 72 Question Id : 67809418695 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Specific heat of aluminium is 0.25 cal/g/°C. The water equivalent of an aluminium vessel of

mass one kilogram is

Options :

1. 40 cal/°C

2. 400 cal/°C

3. 250 cal/°C

4. 25 cal/°C

Question Number : 73 Question Id : 67809418696 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

What should be the percentage increase in the pressure so that the volume of a gas may

decrease by 5% at constant temperature?

Options :

1. 5%

2. 5.26%

3. 10%

4. 4.26%

Question Number : 74 Question Id : 67809418697 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the maximum kinetic energy of emitted photo electrons from a metal is 0.9 eV and work function is 2.2 eV, then the wavelength of incident radiation is

Options :

1. 4000Å

2. 8000Å

3. 3000Å

4. 2000Å

Question Number : 75 Question Id : 67809418698 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the angle of incidence of a ray is greater than the critical angle at the core – cladding interface in an optical fiber, then the ray travels

Options :

1. in the core

2. in the cladding

3. in the buffer

4. along the interface

Chemistry

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

Question Number : 76 Question Id : 67809418699 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Pauli's Exclusion principle states that two electrons in same orbital have

Options :

1. same spins

2. different spins

3. opposite spins

4. vertical spins

Question Number : 77 Question Id : 67809418700 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Orbits in which electrons move according to Bohr are

Options :

1. elliptical

2. cylindrical

3. circular

4. oval

Question Number : 78 Question Id : 67809418701 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Phosphorus has an atomic number of 15. A stable phosphorus atom has an electronic configuration of

Options :

1. $1s^2 2s^2 2p^6 3p^5$

2. $1s^2 2s^2 2p^6 3s^2 3p^3$

3. $1s^2 2s^2 2p^6 3s^2 3p^1 4s^2$

4. $1s^2 1p^6 1d^7$

Question Number : 79 Question Id : 67809418702 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

NaCl is classified as having what kind of bonds in the solid phase?

Options :

1. Covalent

2. Ionic

3. Polar

4. vander Waals

Question Number : 80 Question Id : 67809418703 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The Bond formed due to sharing of electrons is

Options :

1. Ionic bond

2. Metallic bond

3. Polar bond

4. Covalent bond

Question Number : 81 Question Id : 67809418704 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The normality of solution obtained by dissolving 5.3 grams of Na_2CO_3 in 1 litre solution is

Options :

1. 1N

2. 0.1N

3. 0.05N

4. 0.5N

Question Number : 82 Question Id : 67809418705 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The following solution has same molarity and normality

Options :

1. Na_2CO_3

2. $NaCl$

3. H_2SO_4

4. $K_2Cr_2O_7$

Question Number : 83 Question Id : 67809418706 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

5 moles of a solute is dissolved in 10 litres of solution. What is its molarity?

Options :

1. 5 M

2. 2M

3. 0.5M

4. 0.2M

Question Number : 84 Question Id : 67809418707 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Process in which acids (H^+) and bases (OH^-) react to form salts and water is called

Options :

1. Neutralization

2. Halogenation

3. Hydrogenation

4. Hydrolysis

Question Number : 85 Question Id : 67809418708 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A substance that donates a pair of electrons to form coordinate covalent bond is called

Options :

1. Lewis acid

2. Lewis base

3. Bronsted-Lowry acid

4. Bronsted-Lowry base

Question Number : 86 Question Id : 67809418709 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

One Faraday is equal to

Options :

1. 99650 C

2. 93100 C

3. 96500 C

4. 94500 C

Question Number : 87 Question Id : 67809418710 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The cell reaction of a cell is $Mg(s) + 2 H^+(aq) \rightarrow Mg^{2+}(aq) + H_2(g)$. If the standard reduction potential of Zn is -2.372 V, then the emf of the cell is

Options :

1. +2.372 V

2. -2.372 V

3. 0.00 V

4. -1.372 V

Question Number : 88 Question Id : 67809418711 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Galvanic cells are the cells which convert

Options :

1. Electrical energy to chemical energy

2. Chemical energy to electrical energy

3. Chemical energy to free energy

4. Potential energy to kinetic energy

Question Number : 89 Question Id : 67809418712 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Mass of substance produced at electrode is directly proportional to the quantity of electricity passed. This is known as

Options :

1. Faraday's second law

2. Faraday's first law

3. Newton's third law

4. Newton's first law

Question Number : 90 Question Id : 67809418713 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Hardness of water is expressed in terms of equivalent of

Options :

1. Na_2CO_3

2. K_2CO_3

3. $MgCO_3$

4. $CaCO_3$

Question Number : 91 Question Id : 67809418714 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Temporary hardness is caused by

Options :

1. Carbonates of calcium and magnesium

2. Chlorides of calcium and magnesium

3. Sulphates of calcium and magnesium

4. Nitrates of Calcium

Question Number : 92 Question Id : 67809418715 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The exhausted zeolite bed can be regenerated by washing with

Options :

1. NaCl

2. dil. NaOH

3. dil. HCl

4. Distilled water

Question Number : 93 Question Id : 67809418716 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Corrosion is an example of

Options :

1. Oxidation

2. Reduction

3. Electrolysis

4. Halogenation

The composition of rust is

Options :

1. $Fe(OH)_3$

2. $FeCl_3$

3. FeO

4. $Fe_2O_3 . xH_2O$

Which one of the following statement is not true?

Options :

1. Natural rubber has the trans-configuration at every double bond

2. Buna-S is a copolymer of butadiene and styrene

3. Natural rubber is a 1, 4-polymer of isoprene

4. In vulcanization, the formation of sulphur bridges between different chains makes rubber harder and stronger

The monomers of Buna-S rubber are

Options :

1. Styrene and butadiene

2. Styrene and 2-propene

3. Isoprene and butadiene

www.manaresults.co.in

4. Styrene and sulphur

Question Number : 97 Question Id : 67809418720 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The plastics which soften when heat is applied with or without pressure, but require cooling to set them to shape are called as

Options :

1. Thermosofting materials

2. Thermosetting materials

3. Thermoplastic materials

4. Thermostatting materials

Question Number : 98 Question Id : 67809418721 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which one of the following statement is not true about ideal fuel?

Options :

1. High calorific value

2. High moisture content

3. Low cost

4. Moderate ignition temperature

Question Number : 99 Question Id : 67809418722 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Environmental pollution affects

Options :

1. Humans only

2. Plants only

3. Biotic components

4. Both abiotic and biotic components

Question Number : 100 Question Id : 67809418723 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Layer of atmosphere in which ozone layer lies is

Options :

1. Troposphere

2. Stratosphere

3. Exosphere

4. Mesosphere

Mining Engineering

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

Question Number : 101 Question Id : 67809418724 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The quantity of ventilating air (m^3) to be provided in sinking shaft if depth exceeds 25m is _____

Options :

1. 156

2. 207

3. 300

4. 400

Question Number : 102 Question Id : 67809418725 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The method of sinking through loose deposits of sand up to 60m is _____

Options :

1. Piling

2. Forced drop

3. Open caisson

4. Cementation

Question Number : 103 Question Id : 67809418726 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For a coal seam of moderate dip the shaft may be located in the_____of the property

Options :

1. rise

2. middle

3. dip side

4. 1/3 from outcrop

Question Number : 104 Question Id : 67809418727 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The important characteristic of an explosive which will give an idea about heat and humid condition and time of exposure is

Options :

1. resistance

2. sensitivity

3. stability

4. density

Question Number : 105 Question Id : 67809418728 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The constituents in slurry explosive (TNT: AN : Water) used in highly mechanised mine are

Options :

1. 20:15:65

2. 20:65:15

3. 15:20:65

4. 65:15:20

Question Number : 106 Question Id : 67809418729 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The delay period between two consecutive shots with different delay numbers will not exceed

Options :

1. 50ms

2. 60ms

3. 70ms

4. 80ms

Question Number : 107 Question Id : 67809418730 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The best core barrel, among all types of barrels, used for collection of high quality sample is

Options :

1. Single tube core barrel

2. Double tube core barrel

3. Triple core barrel

4. Seamless core barrel

Question Number : 108 Question Id : 67809418731 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In underground coal mines, the commonly used type of drill bits are

Options :

1. Cross type

2. Augur type

3. Chisel type

4. Spherical button type

Question Number : 109 Question Id : 67809418732 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Geochemical prospecting is concerned primarily with the examination of the

Options :

1. Rocks and waters.

2. Waters and gases.

3. Rocks only.

4. Rocks, waters and gases.

Question Number : 110 Question Id : 67809418733 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Sampling is done_____

Options :

1. Parallel to the strike of the ore body.

2. Across the strike of the ore body.

3. Diagonal to the strike of the ore body.

4. In any possible direction.

Question Number : 111 Question Id : 67809418734 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The formation of gypsum from anhydrite is a good example of

Options :

1. Oxidation

2. Hydrolysis

3. Hydration

4. Dehydration.

Question Number : 112 Question Id : 67809418735 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The regional uplift without marked deformation refers to:

Options :

1. Orogenic

2. Eperogenic

3. Epigene

4. Exotic.

Question Number : 113 Question Id : 67809418736 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The end of the Archaean is marked by

Options :

1. Sedimentation.

2. Burst of granitic activity.

3. Folding and faulting.

4. Unconformity.

Question Number : 114 Question Id : 67809418737 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Magmatic magnetite deposits occur with

Options :

1. High viscosity.

2. Diorite

3. Syenite.

4. Pegmatite. .

Question Number : 115 Question Id : 67809418738 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A strike fault separating two lithospheric plates is generally known as

Options :

1. Slip fault.

2. Transform fault.

3. Wrench fault.

4. Enechelon fault.

Question Number : 116 Question Id : 67809418739 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The place where the oil accumulates to form an oil pool, is called

Options :

1. Oil form

2. Oil gallon

3. Oil trap

4. Oil pool

Question Number : 117 Question Id : 67809418740 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Factor of safety of pillar is given b

Options :

1. strength of pillar / load acting on pillar

2. strength of pillar / rock condition

3. strength of pillar / hardness of rock

4. strength of pillar / compressive strength of the rock

Question Number : 118 Question Id : 67809418741 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In Bord and Pillar method of mining, the width of the pillar and galleries are 19.5m and 3m respectively. The percentage of extraction during development is

Options :

1. 24.8

2. 25.2

3. 29.3

4. 30.5

Question Number : 119 Question Id : 67809418742 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Wagon drill works at minimum compressed air pressure of

Options :

1. 4 kg/cm²

2. 5 kg/cm²

3. 6 kg/cm²

4. 7 kg/cm²

Question Number : 120 Question Id : 67809418743 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The mining method used in thick and steep coal seam, where the slices are neither horizontal nor parallel to the inclination of the seam, is called

Options :

1. inclined slicing

2. transverse slicing

3. horizontal slicing

4. integral caving

Question Number : 121 Question Id : 67809418744 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Reaction time of seismic detonators

Options :

1. < 5 ms

2. > 10 ms

3. < 1 ms

4. < 1 ms $\&> 5$ ms

Question Number : 122 Question Id : 67809418745 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The ground in central portion of the subsidence trough is subjected to

Options :

1. tensile tension

2. vertical compression

3. lateral compression

4. lateral tension

Question Number : 123 Question Id : 67809418746 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The core (diameter in mm) size obtained with NX size is

Options :

1. 52

2. 53

3. 50

4. 54

Question Number : 124 Question Id : 67809418747 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The reason for not charging the different types of explosives in the same shot hole is

Options :

1. less output per round of blasting

2. chances of misfire

3. chances of explosion

4. cost of blasting will be maximum

Question Number : 125 Question Id : 67809418748 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Long wall mining method is best suitable for

Options :

1. flat& moderate flat seam

2. steeply inclined seam

3. fractured and geologically disturbed seam

4. seam with high cavability index

Question Number : 126 Question Id : 67809418749 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The method of raising, suitable for moderate lengths and inclination of 40º to 60º with horizontal and with strong wall rocks is

Options :

1. Open raising

2. Compartment raising

3. Long hole raising

4. Alimak raiser

Question Number : 127 Question Id : 67809418750 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Two or three compartment raising method in metal mines is limited to

Options :

1. 10 to 15m

2. 15 to 20 m

3. 20 to 25 m

4. 25 to 30 m

Question Number : 128 Question Id : 67809418751 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Alimak raise climber can be used only where inclination of the raise from horizontal is

Options :

1. 10⁰

2. 20⁰

3. 30⁰

4. 40⁰

Question Number : 129 Question Id : 67809418752 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The method of stoping, suitable for steeply dipping, reasonably firm ore mixed with graded ore with irregular boundaries and where ground surface is to be protected from subsidence is

Options :

1. Open stoping

2. Shrinkage stoping

3. Cut and fill stoping

4. Sublevel stoping

Question Number : 130 Question Id : 67809418753 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Recovery of ore by Shrinkage stoping method is

Options :

1. 40 to 50 %

2. 50 to 60 %

3. 60 to 75 %

4. 75 to 90 %

Question Number : 131 Question Id : 67809418754 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The method of stoping for massive ore bodies of high grade ore with walls when the ore is weak and the ore is mined out in a series or horizontal slices from the top of the ore body is called

Options :

1. Top slicing

2. Block caving

3. Square set stoping

4. Sublevel stoping,

Question Number : 132 Question Id : 67809418755 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The dilution in sublevel caving is..

Options :

1. 10 to 35 %

2. 35 to 45 %

3. 45 to 60 %

4. above 60 %

Question Number : 133 Question Id : 67809418756 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

To maintain suitable working space, the muck pile is shrinked in the shrinkage stoping up to

Options :

1. 20 %

2. 30 %

3. 40 %

4. 50 %

Question Number : 134 Question Id : 67809418757 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The stripping ratio for Bucket wheel excavator is..

Options :

1. 2 : 1

2. 4 to 5:1

3. 8 to 10:1

4. 3 to 4:1

Question Number : 135 Question Id : 67809418758 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The method involving mining and washing together of unconsolidated or semi consolidated rock wear in the ground surface is called

Options :

1. surface mining

2. hydraulic mining

3. glory hole mining

4. placer mining

Question Number : 136 Question Id : 67809418759 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The slope of the high wall is usually....degrees off the vertical

Options :

1. 5

2. 10

3. 15

4. 20

Question Number : 137 Question Id : 67809418760 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The output of the shovel with 4.5m³ bucket is.......m³ per year

Options :

1. 2.5 lac

2. 4 lac

3. 5.5 lac

4. 7 lac

Question Number : 138 Question Id : 67809418761 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The limiting gradient for the dragline is

Options :

1. 8⁰

2. 12⁰

3. 16⁰

4. 20⁰

Question Number : 139 Question Id : 67809418762 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For every degree of the angle of inclination with the vertical, the saving in explosive consumption is

Options :

1. 1 %

2. 2 %

3. 3 %

4. 4 %

Question Number : 140 Question Id : 67809418763 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The fill factor for the Hydraulic shovel is

Options :

1. 75 %

2. 65 %

3. 80 %

4. 90 %

Question Number : 141 Question Id : 67809418764 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Quantity of air to be circulated to u/g workings, where 150 workers are employed in the largest shift and daily production is 500 te , will be

Options :

1. 900 m³/ min

2. 1250 m³/ min

3. 900 m³/ sec

4. 1250 m³/ sec

Question Number : 142 Question Id : 67809418765 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In an underground coal mine area if the graham's ratio found is 3% , it is an indication of

Options :

1. existence of spontaneous heating

2. active fire

3. heating in advanced stage

4. normal to the coal mine

Question Number : 143 Question Id : 67809418766 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Oxygen flow rate in the self-contained breathing apparatus proto mark IV is

Options :

1. 1 L/min

2. 1.5 L/min

3. 2 L/min

4. 2.5 L/min

Question Number : 144 Question Id : 67809418767 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which one of the following is used as a reviving apparatus in u/g coal mine?

Options :

1. Drager BG 172

2. Pulmotor

3. Any open circuit rescue apparatus

4. MSA self-rescuer

Question Number : 145 Question Id : 67809418768 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The minimum illumination standard at the coal mine pit bottom is

Options :

1. 1.5 lux

2. 1.5 lm/ft²

3. 0.4 lm/ft²

4. 2.4 lux

Question Number : 146 Question Id : 67809418769 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The rate of methane gas emission can be expressed as a function of

Options :

1. coal permeability

2. depth

3. width of working

4. method of working

Question Number : 147 Question Id : 67809418770 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Noncollagenous pneumoconiosis is caused by

Options :

1. fibrogenic dust

2. nonfibrogenic dust

3. silica dust

4. barium sulphate

Question Number : 148 Question Id : 67809418771 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Lower limit of inflammability of coal dust is

Options :

1. 1 gm/cc

2. 10 gm/cc

3. 5 gm/cc

4. 2000 gm/ m³

Question Number : 149 Question Id : 67809418772 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The temperatures in upcast shaft and downcast shaft are 40ºC & 30ºC respectively and the shaft is 350m deep. The height of motive column is

Options :

1. 9 m

2. 11m

3. 13 m

4. 15 m

Question Number : 150 Question Id : 67809418773 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The amount of heat produced when 1 kg of CH₄ is burnt is...

Options :

1. 580 kcal

2. 1500 kcal

3. 8800 kcal

4. 13600 kcal

Question Number : 151 Question Id : 67809418774 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The reason for not using more than one auxiliary fan in one ventilating district is

Options :

1. it recirculates air containing dust & noxious gases

2. deposits of dust on the fan moving parts

3. chances of electrostatic sparking

4. it effects the air quality being circulated

Question Number : 152 Question Id : 67809418775 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The detector that works on the principle of diffusion-combustion-contraction is

Options :

1. Spiralarm

2. Methanometer

3. Spectrometer

4. Ring rose detector

Question Number : 153 Question Id : 67809418776 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A fan running at a speed of 300 r.p.m produces 6000m³/min of air at 60mm of wg. If the fan speed is increased to 400 r.p.m, the new quantity of air flowing is

Options :

1. 8000m³/min

2. 12000m³/min

3. 24000m³/min

4. 16000m³/min

Question Number : 154 Question Id : 67809418777 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a sample of mine, atmospheric air percentage of O_2 =19.9, N_2=78.67,

methane = 1.00, carbon dioxide = 0.4, carbon monoxide = 0.03, then the CO produced/

O_2 absorbed is

Options :

1. 0.56%

2. 3%

3. 5%

4. 10%

Question Number : 155 Question Id : 67809418778 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For stone dust to be effective in preventing propagation of flame, the percentage of incombustible dust in the coal/ stone dust sample in a mine should be...

Options :

1. 10% - 20%

2. 20% - 40%

3. 40% - 50%

4. 50% - 60%

Question Number : 156 Question Id : 67809418779 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

An ideal vertical curve to join two gradients, is

Options :

1. Circular

2. Parabolic

3. Elliptical

4. Hyperbolic

Question Number : 157 Question Id : 67809418780 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The intercept of a staff

Options :

1. is maximum if the staff is held truly normal to the line of sight.

2. is minimum if the staff is held truly normal to the line of sight.

3. decreases if the staff is tilted away from normal

4. increases if the staff is tilted towards normal.

Question Number : 158 Question Id : 67809418781 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If S is the length of a sub chord and R is the radius of simple curve, the angle of deflection between its tangent and sub-chord, in minutes, is equal to

Options :

1. 573 R/S

2. 171.9 S/R

3. 1718.9 R/S

4. 1718.9 S/R

Question Number : 159 Question Id : 67809418782 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The accuracy of measurement in chain surveying, does not depend upon

Options :

1. length of the offset

2. scale of the plotting

3. importance of the features

4. general layout of the chain lines.

Question Number : 160 Question Id : 67809418783 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Closed contours of decreasing values towards their centre, represent

Options :

1. a hill

2. a depression

www.manaresults.co.in

3. a saddle or pass

4. a river bed

Question Number : 161 Question Id : 67809418784 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The limiting length of an offset does not depend upon

Options :

1. accuracy of the work

2. method of setting out perpendiculars

3. scale of plotting

4. indefinite features to be surveyed

Question Number : 162 Question Id : 67809418785 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In quadrantal bearing system, back bearing of a line may be obtained from its forward bearing, by

Options :

1. adding 180°, if the given bearing is less than 180°

2. subtracting 180°, if the given bearing, is more than 180°

3. changing the cardinal points, i.e. substituting N for S and E for W and vice-versa

4. Multiplying by 180°, if the given bearing, is more than 180°

Question Number : 163 Question Id : 67809418786 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

True meridians are generally preferred to magnetic meridians because

Options :

1. They converge to a point

2. They change due to change in time

3. They remain constant.

4. They are unpredictable

Question Number : 164 Question Id : 67809418787 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The slope correction for a length of 30 m along a gradient of 1 in 20, is...

Options :

1. 3.75 cm

2. 0.375 cm

3. 37.5 cm

4. 2.75 cm

Question Number : 165 Question Id : 67809418788 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When the image formed by the objective is not situated in the plane of cross-hairs,

Options :

1. the cross-hairs should be adjusted www.manaresults.co.in

2. the eye-piece should be focussed

3. the objective should be focussed

4. the parallax should be removed

Question Number : 166 Question Id : 67809418789 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The tachometric method of contouring is particularly suitable

Options :

1. when a contoured map of hill is required

2. when the area is not very extensive

3. in surveys of roads or railways

4. when the area is not very narrow

Question Number : 167 Question Id : 67809418790 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In shaft plumbing, the plumb bobs are immersed in a bucket of water to prevent

Options :

1. Oscillation of wires

2. Effect of ventilation current

3. Kinking of the wires

4. Swinging of wires

Question Number : 168 Question Id : 67809418791 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Information in Geographical Information System is entered and stored as

Options :

1. Panels

2. layers

3. single panel

4. Layouts

Question Number : 169 Question Id : 67809418792 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The minimum gradient suitable for direct rope haulage in an incline is…

Options :

1. 1 in 10

2. 1 in 11

3. 1 in 12

4. 1 in 13

Question Number : 170 Question Id : 67809418793 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Jig pulley is used in

Options :

1. Direct rope haulage

2. Endless rope haulage

3. Gravity rope haulage

4. Main and tail rope haulage

Question Number : 171 Question Id : 67809418794 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The function of pull cord in the belt conveyor system is

Options :

1. cleaning device

2. safety stopping device

3. material discharging on the side of the belt

4. increasing the angle of wrap

Question Number : 172 Question Id : 67809418795 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For Armoured Face Conveyor, open-bottom pans are preferable to closed-bottom pans because

Options :

1. these don't sink into soft floor being of lighter weight

2. the return chain cannot get jammed due to accumulation of coal particles

3. these can be easily inspected and maintained

4. these make less noise

Question Number : 173 Question Id : 67809418796 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Maximum damage to a haulage rope in underground coal mines is caused by

Options :

1. fatigue

2. wear and tear

3. corrosion

4. mine climate

Question Number : 174 Question Id : 67809418797 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The direct rope haulage system can also serve branch roads if the gradient is suitable and the road deviating at an angle of not more than

Options :

1. 10⁰

2. 20⁰

3. 30⁰

4. 40⁰

Question Number : 175 Question Id : 67809418798 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The synchronous speed of an electric motor of 3 phase 50 cycles with 16 poles motor is….

Options :

1. 375 r.p.m

2. 187 r.p.m

3. 750 r.p.m

4. 1400 r.p.m

Question Number : 176 Question Id : 67809418799 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The r.m.s torque of a 3.8m diameter winder is 109kN-m. If the rope speed is 7.6m/s, the motor power required to run the winder is….

Options :

1. 436 kW

2. 506 kW

3. 872 kW

4. 1574 kW

Question Number : 177 Question Id : 67809418800 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which type of the following force is not acted on a mine car while it is in motion?

Options :

1. (gravitational

2. (torsion

3. (tractive

4. (centrifugal

Question Number : 178 Question Id : 67809418801 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The following value of ventilation is recommended for Side Discharge Loader /Loader Haul Dumper

Options :

1. 1 m³/ min / kW of motor power

2. 5 m³/ min / kW of motor power

3. 10 m³/ min / kW of motor power

4. 15 m³/ min / kW of motor power

Question Number : 179 Question Id : 67809418802 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The expected output in tonnes per day (tpd) from a continuous miner in underground coal mine is

Options :

1. 1000 tpd

2. 1250 tpd

3. 1500 tpd

4. 2000 tpd

Question Number : 180 Question Id : 67809418803 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The maximum torque of the winding engine during the cycle of winding operations occurs

Options :

1. at the starting

2. at the middle

3. at the ending

4. always

Question Number : 181 Question Id : 67809418804 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Internal stresses of the rope can be relieved with the use of

Options :

1. Sail pattern

2. Preformed wire

3. Fillers pattern

4. Wassington pattern

Question Number : 182 Question Id : 67809418805 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The length of splice for a rope of 13mm diameter is

Options :

1. 2-3m

2. 4-5m

3. 5-6m

4. 6-9m

Question Number : 183 Question Id : 67809418806 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which act took care of the industrial disputes before the industrial disputes act was implemented in the year 1947?

Options :

1. Trade Disputes Act, 1929

2. Royal Commission on Labour, 1934

3. Labour Management Relations Act, 1947

4. Mines Act, 1952

Question Number : 184 Question Id : 67809418807 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which one of the following is not a machinery for settlement of Industrial Disputes under the Industrial Disputes Act, 1947?

Options :

1. Court of Enquiry

2. Labour Court

3. Industrial Tribunal

4. Administrative tribunal

Question Number : 185 Question Id : 67809418808 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The back bone of any organization is

Options :

1. information

2. employee

3. management

4. capital

Question Number : 186 Question Id : 67809418809 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The main reason for an entrepreneur to conduct a feasibility study for starting a new venture is

Options :

1. To identify possible sources of funds

2. To see if there are possible barriers to success

3. To estimate the expected sales

4. To explore potential customers

Question Number : 187 Question Id : 67809418810 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In Mines Vocational Training Rules, 1966, the chapter III deals with ….

Options :

1. Persons to be trained

2. General vocational training.

3. Refresher training

4. Training of special categories of employees

Question Number : 188 Question Id : 67809418811 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The objective of ISO-9000 family of quality management is

Options :

1. Customer satisfaction

2. Employee satisfaction

3. Skill enhancement

4. Environmental issues

Question Number : 189 Question Id : 67809418812 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

As per The Indian Electricity Rules, 1956, the flexible cable in case of an open cast mine, when used with electrically operated heavy earth moving machinery shall not exceed _____ metres in length.

Options :

1. 150

2. 200

3. 300

4. 325

Question Number : 190 Question Id : 67809418813 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Minor injuries shall be recorded in Form …. and reports shall be sent to Regional Inspector once in

Options :

1. 'J' – once in a quarter

2. 'K' – once in a year

3. 'J' – once in a year

4. 'K' – once in a quarter

Question Number : 191 Question Id : 67809418814 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

As per regulation 177 of M.M.R. 1961, every fence erected on the surface shall be examined once at least in every week by

Options :

1. Mines Manager

2. Asst. Mines Manager

3. Foreman

4. Competent person

Question Number : 192 Question Id : 67809418815 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

First-aid room shall have floor space not less than .

Options :

1. 5 Sq.m

2. 10 Sq. m

3. 50 Sq.m

4. 15 Sq.m

Question Number : 193 Question Id : 67809418816 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If any employee contracts a notified occupational disease, the mine management shall send notice to Regional Inspector in

Options :

1. Form 'I'

2. Form 'II'

3. Form IV 'C'

4. Form 'V'

Question Number : 194 Question Id : 67809418817 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In every mine, if the average monthly output exceeds at least_____,the manager shall be assisted in the work by a safety officer

Options :

1. 5000 tons

2. 3000 tons

3. 7000 tons

4. 1000 tons

Question Number : 195 Question Id : 67809418818 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In-situ ore of 1.5% Cu got diluted with waste rock of value 0.2% Cu. If the resultant extracted ore has 1.2% Cu, what is the percentage of dilution?

Options :

1. 23

2. 25

3. 30

4. 20

Question Number : 196 Question Id : 67809418819 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When the particles of same or different specific gravity come to rest at different instants, the phenomenon is termed as

Options :

1. Stratification

2. Hindered settling

3. Consolidation trickling

4. Differential acceleration

Question Number : 197 Question Id : 67809418820 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Griffiths principle is based upon

Options :

1. flotation

2. classification

3. comminution

4. separation

Question Number : 198 Question Id : 67809418821 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following is the widely used method for particle size analysis?

Options :

1. test sieving

2. grinding

3. elutriation

4. sedimentation

Question Number : 199 Question Id : 67809418822 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following utilizes the method of gravity concentration?

Options :

1. froth flotation

2. jigging

3. spiral classifier

4. duopactor

Question Number : 200 Question Id : 67809418823 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Processing of minerals to get valuable content of it is known as

Options :

1. milling

2. monitoring

3. extraction

4. separation