Question Paper Preview

Question Paper Name: Electronics and Instrumentation Engineering
Subject Name: Electronics and Instrumentation Engineering

Mathematics

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

Question Number : 1 Question Id : 67809418024 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 : 67809418025 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^TB^T

2. B^TA^T

3. $(BA)^T$

4. AB^T

Question Number : 3 Question Id : 67809418026 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 : 67809418027 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 : 67809418028 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 : 67809418029 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

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

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

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

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

Question Number : 7 Question Id : 67809418030 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

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

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

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

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

Question Number : 8 Question Id : 67809418031 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. $\frac{1}{7}$

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

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

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

Question Number : 9 Question Id : 67809418032 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. $\operatorname{cosec} 2A$

Question Number : 10 Question Id : 67809418033 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. sinA

2. cosA

3. tanA

4. cotA

Question Number : 11 Question Id : 67809418034 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. $\frac{7}{15}$

Question Number : 12 Question Id : 67809418035 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $cos20^0 + cos100^0 + cos140^0 =$

Options :

1. 0

2. 3

3. 1

4. -3

Question Number : 13 Question Id : 67809418036 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. 2abc

2. 4abc

3. 3abc

4. 5abc

Question Number : 14 Question Id : 67809418037 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. C^3

2. C

3. C^5

4. C^2

Question Number : 15 Question Id : 67809418038 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. $\pi/4$

2. $\pi/2$

3. $\pi/6$

4. $\pi/3$

Question Number : 16 Question Id : 67809418039 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

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

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 : 17 Question Id : 67809418040 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 : 18 Question Id : 67809418041 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 : 67809418042 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 : 67809418043 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 : 67809418044 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 : 67809418045 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 : 67809418046 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 : 67809418047 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. $(-13,0)$

2. $(13,0)$

3. $(13,-1)$

4. $(13,1)$

Question Number : 25 Question Id : 67809418048 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 : 67809418049 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 : 67809418050 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 : 67809418051 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. $(x-3)x^2e^x$

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

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

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

Question Number : 29 Question Id : 67809418052 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 : 67809418053 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. $\frac{\sinh^2 x}{(2-3\sinh x)^2}$

Question Number : 31 Question Id : 67809418054 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

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

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

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

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

Question Number : 32 Question Id : 67809418055 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 : 67809418056 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 : 67809418057 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 : 67809418058 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

4. $nu^2 + u$

Question Number : 36 Question Id : 67809418059 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. $2\sin x+c$

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

Question Number : 37 Question Id : 67809418060 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 : 67809418061 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. $\frac{1}{3}\tan^{-1}\left(\frac{2x+1}{4}\right)+c$

Question Number : 39 Question Id : 67809418062 Display Question Number : Yes Single Line Question Option : No Option 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 : 40 Question Id : 67809418063 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. $\frac{20}{3}$

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

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

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

Question Number : 41 Question Id : 67809418064 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

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

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

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

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

Question Number : 42 Question Id : 67809418065 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 : 67809418066 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 : 67809418067 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. $\frac{dy}{dx} = \frac{2y}{x}$

Question Number : 45 Question Id : 67809418068 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 : 67809418069 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

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

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

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

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

Question Number : 47 Question Id : 67809418070 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 : 67809418071 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 : 67809418072 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. $\frac{e^{2x}}{12}$

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

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

Question Number : 50 Question Id : 67809418073 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 : 67809418074 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

3. Newton metre

4. Kilowatt hour

Question Number : 52 Question Id : 67809418075 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 : 67809418076 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. $\pi/2$

2. $\pi/4$

3. $\pi/3$

4. $\pi/6$

Question Number : 54 Question Id : 67809418077 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 : 67809418078 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 : 67809418079 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 : 67809418080 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 : 67809418081 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 : 67809418082 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 : 67809418083 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 : 67809418084 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 : 67809418085 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 : 67809418086 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 : 67809418087 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 : 67809418088 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. π^2n^2L

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

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

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

Question Number : 66 Question Id : 67809418089 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 : 67809418090 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 : 67809418091 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 : 67809418092 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 : 67809418093 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 : 67809418094 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 : 67809418095 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 : 67809418096 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 : 67809418097 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 : 67809418098 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 : 67809418099 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 : 67809418100 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 : 67809418101 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 : 67809418102 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 : 67809418103 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 : 67809418104 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 : 67809418105 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 : 67809418106 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 : 67809418107 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 : 67809418108 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 : 67809418109 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 : 67809418110 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 : 67809418111 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 : 67809418112 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 : 67809418113 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 : 67809418114 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 : 67809418115 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 : 67809418116 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

Question Number : 94 Question Id : 67809418117 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The composition of rust is

Options :

1. $Fe(OH)_3$

2. $FeCl_3$

3. FeO

4. $Fe_2O_3.xH_2O$

Question Number : 95 Question Id : 67809418118 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Question Number : 96 Question Id : 67809418119 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The monomers of Buna-S rubber are

Options :

1. Styrene and butadiene

2. Styrene and 2-propene

3. Isoprene and butadiene

4. Styrene and sulphur

Question Number : 97 Question Id : 67809418120 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 : 67809418121 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 : 67809418122 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 : 67809418123 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

Electronics and Instrumentation Engineering

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

Question Number : 101 Question Id : 67809418124 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The armature of DC generator is laminated to _____.

Options :

1. increase eddy current loss

2. reduce eddy current loss

3. reduce the bulk

4. provide the bulk

Question Number : 102 Question Id : 67809418125 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Starters are used with D.C. motors because_____.

Options :

1. these motors have high starting torque

2. these motors are not self-starting

3. back e.m.f. of these motors is zero initially

4. to restrict armature current as there is no back e.m.f. while starting

Question Number : 103 Question Id : 67809418126 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The frequency of domestic power supply in India is _____ Hz.

Options :

1. 0

2. 50

3. 60

4. 230

Question Number : 104 Question Id : 67809418127 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If a circuit contains two unequal resistances in parallel, then

Options :

1. current is same in both

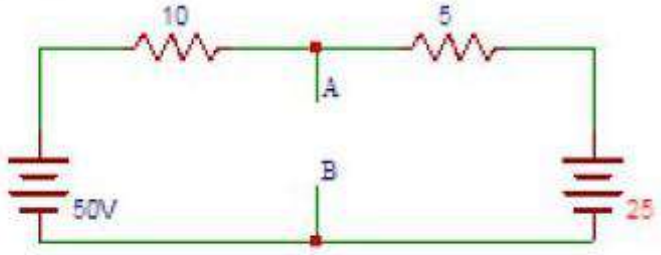
2. large current flows in larger resistor

3. potential difference across each is same

4. smaller resistance has smaller potential across it

Question Number : 105 Question Id : 67809418128 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Determine the equivalent Thevenin's resistance in Ω, between terminals A and B in the circuit shown below.



Options :

1. 3.33

2. 5

3. 6.66

4. 15

Question Number : 106 Question Id : 67809418129 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Kirchhoff's current law is based on law of conservation of _____.

Options :

1. Energy

2. momentum

3. mass

4. charge

Question Number : 107 Question Id : 67809418130 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a phototransistor the base current is _____.

Options :

1. set by bias voltage

2. Directly proportional to light

3. inversely proportional to light

4. Independent of light

Question Number : 108 Question Id : 67809418131 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____ is used to detect light intensities which are very weak.

Options :

1. Photomultiplier tube

2. Photovoltaic cell

3. Photoemissive tubes

4. Photo reflector

Question Number : 109 Question Id : 67809418132 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Induction heating is based on the principle of _____.

Options :

1. thermal ion release

2. nucleate heating

3. electromagnetic induction

4. resistance heating

Question Number : 110 Question Id : 67809418133 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Solar cells are made of _____.

Options :

1. Steel

2. Iron

3. Aluminum

4. Silicon

Question Number : 111 Question Id : 67809418134 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If ultrasonic wave travels at a speed of 350 m/s and the time taken for the wave to travel from transmitter to the other end and back to the transmitter is 20 s, at what distance the target is present?

Options :

1. 350m

2. 700m

3. 3500m

4. 7000m

Question Number : 112 Question Id : 67809418135 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Time response for a second order system depends on value of ζ. If $\zeta = 0$ then the system is called as _____.

Options :

1. undamped system

2. under damped system

3. critically damped system

4. over damped system

Question Number : 113 Question Id : 67809418136 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Transfer function of a system depends on _____.

Options :

1. initial conditions of input and output

2. nature of the input

3. nature of the output

4. input and output

Question Number : 114 Question Id : 67809418137 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A closed loop system differs from an open loop system by _____.

Options :

1. servomechanism

2. feedback

3. input signal

4. output signal

Question Number : 115 Question Id : 67809418138 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If all the roots of a characteristic equation have negative real parts, then the system is _____.

Options :

1. stable

2. unstable

3. conditionally stable

4. marginally stable

Question Number : 116 Question Id : 67809418139 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Zener diode is used as _____.

Options :

1. Current regulator

2. Voltage regulator

3. Voltage booster

4. Power booster

Question Number : 117 Question Id : 67809418140 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The resistance of a semiconductor material _____ with increase in temperature.

Options :

1. increases

2. decreases

3. does not change

4. first increases and then decreases

Question Number : 118 Question Id : 67809418141 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The relation between emitter current (I_E), base current (I_B) and collector current (I_C) in a transistor is given by _____.

Options :

1. $I_E = I_B + I_C$

2. $I_C = I_B + I_E$

3. $I_B = I_E + I_C$

4. $I_E + I_B + I_C = 1$

Question Number : 119 Question Id : 67809418142 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____transistor configuration is referred to as emitter follower.

Options :

1. Common emitter

2. Common base

3. Common collector

4. Common anode

Question Number : 120 Question Id : 67809418143 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A p-n junction allows current flow when _____.

Options :

1. both p and n type materials are at same potential

2. there is no potential between p and n type materials

3. n type material is more positive than p type material

4. p type material is more positive than n type material

Question Number : 121 Question Id : 67809418144 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____ is used as a relaxation oscillator.

Options :

1. UJT

2. FET

3. MOSFET

4. SCR

Question Number : 122 Question Id : 67809418145 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

An astable multivibrator is also known as _____ multivibrator.

Options :

1. monostable

2. one shot

3. bistable

4. free running

Question Number : 123 Question Id : 67809418146 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The number of RC stages in a RC phase shift oscillator are _____.

Options :

1. 1

2. 2

3. 3

4. 4

Question Number : 124 Question Id : 67809418147 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Voltage across a forward biased diode is _____.

Options :

1. Zero

2. Infinite

3. Diode barrier potential

4. Battery voltage

Question Number : 125 Question Id : 67809418148 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

An oscillator differs from an amplifier because it _____.

Options :

1. has more gain

2. requires no input signal

3. requires no dc supply

4. always has the same input

Question Number : 126 Question Id : 67809418149 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

An oscillator circuit has _____.

Options :

1. positive feedback

2. negative feedback

3. no feedback

4. either positive or negative feedback

Question Number : 127 Question Id : 67809418150 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Cross over distortion is a problem in _____ amplifiers.

Options :

1. Class A

2. Class B

3. Class C

4. Class D

Question Number : 128 Question Id : 67809418151 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If all the inputs are low the output is high for _____ logic gate.

Options :

1. AND

2. OR

3. XOR

4. NAND

Question Number : 129 Question Id : 67809418152 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Convert $(41)_{10}$ to (_____)$_2$.

Options :

1. 00101001

2. 01000001

3. 10010100

4. 11110001

Question Number : 130 Question Id : 67809418153 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The number of inputs given for a D flip-flop is _____.

Options :

1. 4

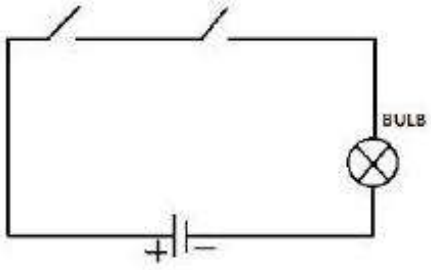
2. 3

3. 2

4. 1

Question Number : 131 Question Id : 67809418154 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The logic gate represented by the circuit shown below is _____.



Options :

1. NAND

2. NOR

3. AND

4. OR

Question Number : 132 Question Id : 67809418155 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____ characteristic of RAM memory makes it not suitable for permanent storage.

Options :

1. Non volatile

2. Too slow

3. Too bulky

4. Volatile.

Question Number : 133 Question Id : 67809418156 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Sample and hold circuit is required for which of the following?

Options :

1. ADC

2. DAC

3. Counter

4. Adder

Question Number : 134 Question Id : 67809418157 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following is an invalid state in a BCD counter?

Options :

1. 0110

2. 1111

3. 0010

4. 0100

Question Number : 135 Question Id : 67809418158 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The resolution of 8 bit ADC is _____.

Options :

1. 8

2. 16

3. 64

4. 256

Question Number : 136 Question Id : 67809418159 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

An 8 bit successive approximation analog to digital converter has full scale reading of 2.55 V and its conversion time for an analog input of 1V is 20µs. The conversion time for a2V input will be_____.

Options :

1. 10 µs

2. 20 µs

3. 40 µs

4. 80 µs

Question Number : 137 Question Id : 67809418160 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The number of resistors required for an N bit DAC is 2N in the case of _____DAC.

Options :

1. Binary weighted

2. Successive approximation

3. R-2R ladder

4. Dual slope

Question Number : 138 Question Id : 67809418161 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The range of an ammeter is _____.

Options :

1. increased by increasing the value of shunt resistance

2. increased by decreasing the value of shunt resistance

3. decreased by decreasing the value of shunt resistance

4. independent of shunt resistance

Question Number : 139 Question Id : 67809418162 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The waveforms for the measurement of frequency and phase using a CRO are called _____.

Options :

1. Lissajous patterns

2. Sine waveforms

3. Cosine waveforms

4. Sawtooth waveforms

Question Number : 140 Question Id : 67809418163 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

CRO gives the visual representation of time varying signals. The display of the signal is _____.

Options :

1. one dimensional

2. two dimensional

3. three dimensional

4. four dimensional

Question Number : 141 Question Id : 67809418164 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A Q-meter is used to measure _____.

Options :

1. Electrical properties of capacitors only

2. Mechanical properties of coils only

3. Electrical properties of both coils and capacitors

4. Electrical properties of resistor

Question Number : 142 Question Id : 67809418165 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A spectrum analyzer measures the amplitude of an input signal vs _____.

Options :

1. time

2. amplitude of output signal

3. amplitude of another input signal

4. frequency

Question Number : 143 Question Id : 67809418166 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____ is an electronic instrument that captures and displays multiple signals from a digital circuit.

Options :

1. Spectrum analyzer

2. Logic analyzer

3. Frequency meter

4. Oscillator

Question Number : 144 Question Id : 67809418167 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The instrument which measures difference between the known and unknown voltage source is known as _____.

Options :

1. voltmeter

2. differential voltmeter

3. differential amplifier

4. multimeter

Question Number : 145 Question Id : 67809418168 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

FET voltmeters have _____.

Options :

1. high input impedance and low loading effect

2. high input impedance and high loading effect

3. low input impedance and low loading effect

4. low input impedance and high loading effect

Question Number : 146 Question Id : 67809418169 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____is the difference between the largest and smallest reading of an instrument.

Options :

1. precision

2. resolution

3. range

4. span

Question Number : 147 Question Id : 67809418170 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____ is defined as the largest change in input quantity for which there is no output in the instrument.

Options :

1. precision

2. resolution

3. dead zone

4. threshold

Question Number : 148 Question Id : 67809418171 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

LVDT is used for the measurement of _____.

Options :

1. Linear displacement

2. Angular displacement

3. Voltage

4. Temperature

Question Number : 149 Question Id : 67809418172 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The SI unit of angular velocity is _____.

Options :

1. meters per second

2. meters per hour

3. radians per second

4. radians per hour

Question Number : 150 Question Id : 67809418173 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Scientific definition of pH is negative logarithm to base 10 of_____.

Options :

1. H^+ ion concentration

2. OH^- ion concentration

3. O^+ ion concentration

4. power of hydroxyl group

Question Number : 151 Question Id : 67809418174 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The instrument used to measure humidity is _____.

Options :

1. Rotameter

2. Hygrometer

3. LVDT

4. Thermometer

Question Number : 152 Question Id : 67809418175 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which one of the following is an active transducer.

Options :

1. RTD

2. Thermistor

3. Potentiometer

4. Thermocouple

Question Number : 153 Question Id : 67809418176 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A Reynold's number of 1000 indicates_____.

Options :

1. Laminar flow

2. turbulent flow

3. normal flow

4. neither turbulent nor laminar

Question Number : 154 Question Id : 67809418177 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____ do not put any obstruction in the flow of fluid through them.

Options :

1. Electromagnetic flow meter

2. Rotameter

3. Venturi meter

4. Orifice plate flow meter

Question Number : 155 Question Id : 67809418178 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For flow measurement the rotameter can be installed in pipeline _____.

Options :

1. Horizontally with flow inlet in a specific direction

2. Horizontally with flow inlet in any direction

3. Vertically with flow inlet at the bottom and outlet at the top

4. Vertically with flow inlet at the top and outlet at the bottom

Question Number : 156 Question Id : 67809418179 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A hotwire anemometer is a device used to measure _____.

Options :

1. Temperature

2. Pressure in gases

3. Liquid discharge

4. Gas velocities

Question Number : 157 Question Id : 67809418180 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____ is a measure of a fluid's resistance to flow.

Options :

1. Density

2. Viscosity

3. Conductivity

4. Humidity

Question Number : 158 Question Id : 67809418181 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Piezoelectric crystal is generally employed for the measurement of which of the following?

Options :

1. Flow

2. Velocity

3. Acceleration

4. Temperature

Question Number : 159 Question Id : 67809418182 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The SI unit of conductivity is _____.

Options :

1. Siemens per meter

2. Newton per meter

3. litres per meter

4. Kg per cm

Question Number : 160 Question Id : 67809418183 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Flapper nozzle is used in a/an _____ controller.

Options :

1. hydraulic

2. electronic

3. pneumatic

4. hydro-electronic

Question Number : 161 Question Id : 67809418184 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following controller has maximum offset?

Options :

1. Proportional controller

2. Proportional-Integral controller

3. Proportional-Integral-Derivative controller

4. Proportional-Derivative controller

Question Number : 162 Question Id : 67809418185 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In process control error signal is the difference between _____.

Options :

1. setpoint and manipulated variable

2. setpoint and process variable

3. manipulated variable and process variable

4. manipulated variable and controlled variable

Question Number : 163 Question Id : 67809418186 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____ control action responds to the rate at which the error is changing.

Options :

1. Proportional

2. Integral

3. Derivative

4. Proportional-Integral

Question Number : 164 Question Id : 67809418187 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The most common analog signal standard of current for industrial process instruments is _____.

Options :

1. 0 to 4mA

2. 0 to 20mA

3. 4 to 20 mA

4. 3 to 15 mA

Question Number : 165 Question Id : 67809418188 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In letter codes, the second letter is to identify .

Options :

1. measured value

2. modifier

3. function modifier

4. readout function

Question Number : 166 Question Id : 67809418189 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Identify the following P&ID line types from left to right.

Options :

1. pneumatic, capillary, electric, hydraulic

2. electric, capillary, hydraulic, pneumatic

3. capillary, hydraulic, pneumatic, electric

4. pneumatic, electric, capillary, hydraulic

Question Number : 167 Question Id : 67809418190 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The controller in which a primary or master controller generates a control effort that serves as the set point for a secondary or slave controller is _____.

Options :

1. Adaptive controller

2. cascade controller

3. pneumatic controller

4. ratio controller

Question Number : 168 Question Id : 67809418191 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The Laplace Transform of a 4 second transportation lag element is

Options :

1. e^{-4s}

2. $1/(s+4)$

3. e^{4s}

4. $e^{-s/4}$

Question Number : 169 Question Id : 67809418192 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

CNC stands for _____.

Options :

1. Central Number Control

2. Central Numeric Center

3. Computer Number Control

4. Computer Numeric Control

Question Number : 170 Question Id : 67809418193 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____ is used to maintain the flow rate of one stream in a process at a defined or specified proportion relative to that of another.

Options :

1. Adaptive controller

2. Cascade controller

3. Ratio controller

4. Pneumatic controller

Question Number : 171 Question Id : 67809418194 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following is not a continuous controller mode?

Options :

1. Proportional

2. Integral

3. Derivative

4. On-Off

Question Number : 172 Question Id : 67809418195 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A part of the final control element that translates the control signal into action of the final control device in the process is called _____.

Options :

1. actuator

2. accelerometer

3. sensor

4. integrator

Question Number : 173 Question Id : 67809418196 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Proportional band is given by _____.

Options :

1. $K_p/100$

2. $100/\ K_p$

3. $1/K_p$

4. K_p

Question Number : 174 Question Id : 67809418197 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In TV system, picture and sound respectively use _____.

Options :

1. AM, FM

2. FM, FM

3. FM, AM

4. AM, AM

Question Number : 175 Question Id : 67809418198 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The circuit whose output is proportional to difference between the input signals is _____ amplifier.

Options :

1. common mode

2. darlington

3. differential

4. operational

Question Number : 176 Question Id : 67809418199 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In amplitude modulation, the _____of carrier is varied according to the strength of the signal.

Options :

1. frequency

2. amplitude

3. phase

4. velocity

Question Number : 177 Question Id : 67809418200 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The full form of CMRR is _____.

Options :

1. Central Mode Rejection Rate

2. Central Mode Rejection Ratio

3. Common Mode Rejection Rate

4. Common Mode Rejection Ratio

Question Number : 178 Question Id : 67809418201 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The gain of voltage follower is _____.

Options :

1. 1

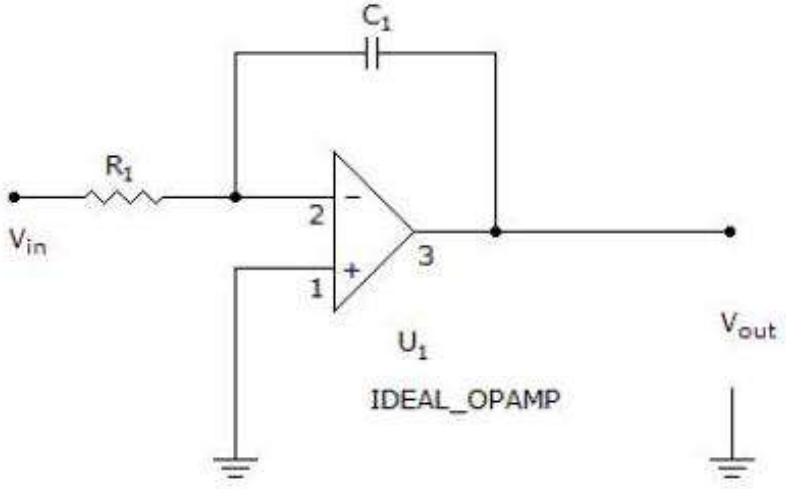
2. 100

3. 1000

4. infinity

Question Number : 179 Question Id : 67809418202 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the input is a square wave, the output of the circuit is _____ wave.



Options :

1. sine

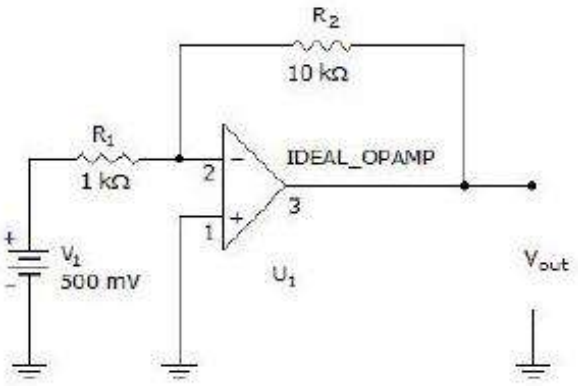
2. square

3. triangle

4. saw tooth

Question Number : 180 Question Id : 67809418203 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Find the output voltage for the given circuit.



Options :

1. 5V

2. -5V

3. 50mV

4. -50mV

Question Number : 181 Question Id : 67809418204 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____is a comparator circuit with hysteresis implemented by applying positive feedback to the noninverting input of a comparator or differential amplifier.

Options :

1. Wein bridge oscillator

2. Integrator

3. Multivibrator

4. Schmitt trigger

Question Number : 182 Question Id : 67809418205 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Beer-Lambert law states that the quantity of light absorbed by a substance dissolved in a fully transmitting solvent is _____.

Options :

1. indirectly proportional to the concentration of the substance and the path length of the light through the solution

2. directly proportional to the concentration of the substance only

3. directly proportional to the concentration of the substance and the path length of the light through the solution

4. directly proportional to the path length of the light through the solution only

Question Number : 183 Question Id : 67809418206 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In electromagnetic spectrum, which of the following sequence gives the wave length from the lowest to the highest?

Options :

1. Gamma ray, X-ray, UV, Visible

2. UV, Visible, Gamma ray, X-ray

3. X-ray, Gamma ray, Visible, UV

4. Visible, X-ray, Gamma ray, UV

Question Number : 184 Question Id : 67809418207 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____ is an instrument which takes advantage of Luminescence properties of some compounds in order to provide information regarding their concentration.

Options :

1. Flame photometer

2. Spectroflourometer

3. Polarimeter

4. Gas chromatograph

Question Number : 185 Question Id : 67809418208 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In _____ the intensity of light emitted is related to the concentration of the element.

Options :

1. Mass spectrometer

2. Flame photometer

3. Polarimeter

4. Gas chromatograph

Question Number : 186 Question Id : 67809418209 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____ instrument uses the technique in which sample is converted into rapidly moving positive ions by electron bombardment and charged particles are separated according to their masses.

Options :

1. Polarimeter

2. UV-Visible spectrophotometer

3. Mass spectrometer

4. Gas chromatograph

Question Number : 187 Question Id : 67809418210 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In photometers, the initial readings of the specimen are related to which of the following parameters?

Options :

1. Volume

2. Wave Length

3. Absorption

4. Transmittance

Question Number : 188 Question Id : 67809418211 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____ generates an electrical stimulus regularly that causes heart muscles to contract and expand.

Options :

1. Atria

2. Ventricles

3. ECG

4. SA node

Question Number : 189 Question Id : 67809418212 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Computer aided tomography is used _____.

Options :

1. for taking medical images

2. to know the electrical activity of heart

3. to know the electrical activity of brain

4. for correcting irregularities of heart

Question Number : 190 Question Id : 67809418213 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____ is a device which is used to give electric shock to the heart to stop an extremely rapid , irregular heartbeat and restore the normal rhythm.

Options :

1. Pacemaker

2. Defibrillator

3. Computer aided tomography

4. X-ray machine

Question Number : 191 Question Id : 67809418214 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Choose the word which is not assigned to identify the frequency of EEG.

Options :

1. Alpha

2. Beta

3. Gamma

4. Delta

Question Number : 192 Question Id : 67809418215 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The principle of Doppler effect is used for the measurement of _____.

Options :

1. Blood pressure

2. electrical activity of heart

3. electrical activity of brain

4. blood flow

Question Number : 193 Question Id : 67809418216 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The numbers of timers present in 8051 microcontroller are _____.

Options :

1. 2

2. 3

3. 4

4. 6

Question Number : 194 Question Id : 67809418217 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

DMA stands for _____.

Options :

1. Data Memory Address

2. Data Memory Access

3. Direct Memory Access

4. Direct Main Address

Question Number : 195 Question Id : 67809418218 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____ I/O ports of 8051 microcontroller provide address and data when external memory is interfaced.

Options :

1. P0&P1

2. P0&P2

3. P!&P2

4. P1&P3

Question Number : 196 Question Id : 67809418219 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The instruction MUL works only on _____ registers of 8051 microcontroller.

Options :

1. A& R0

2. R0&R1

3. A&B

4. A&R1

Question Number : 197 Question Id : 67809418220 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The number of I/O ports present in 8255 programmable peripheral interface is _____.

Options :

1. 2

2. 3

3. 4

4. 5

Question Number : 198 Question Id : 67809418221 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Programmable logic controllers are programmed using _____.

Options :

1. Ladder diagram

2. C language

3. Assembly language

4. High level language

Question Number : 199 Question Id : 67809418222 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The cycle time of a PLC is the time it takes to _____.

Options :

1. Read an input signal.

2. Read all the input signals

3. Check all the input signals against the program

4. Read all the inputs, run the program and update all outputs

Question Number : 200 Question Id : 67809418223 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following statement is not true?

Options :

1. The vertical lines of the diagram represent the power rails

2. Each rung defines one operation in the control process

3. A ladder diagram is read from left to right

4. A ladder diagram is read from right to left