Andhra Pradesh State Council of Higher Education

Notations :

1.Options shown in green color and with ✔ icon are correct.

2.Options shown in red color and with ✖ icon are incorrect.

Question Paper Name :	Electronics and Instrumentation Engineering 08th May 2024 Shift 2
Duration :	180
Total Marks :	200
Display Marks:	No
Share Answer Key With Delivery Engine :	Yes
Calculator :	None
Magnifying Glass Required? :	No
Ruler Required? :	No
Eraser Required? :	No
Scratch Pad Required? :	No
Rough Sketch/Notepad Required? :	No
Protractor Required? :	No
Show Watermark on Console? :	Yes
Highlighter :	No
Auto Save on Console?	Yes
Change Font Color :	No
Change Background Color :	No
Change Theme :	No
Help Button :	No
Show Reports :	No

Show Progress Bar :	No
Is this Group for Examiner? :	No
Examiner permission :	Cant View
Show Progress Bar? :	No

Mathematics

Section Id :	210688174
Section Number :	1
Mandatory or Optional :	Mandatory
Number of Questions :	50
Section Marks :	50
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Is Section Default? :	null

Question Number : 1 Question Id : 2106888807 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $\begin{vmatrix} 15-x & 11 & 10 \\ 11-3x & 17 & 16 \\ 7-x & 14 & 13 \end{vmatrix}=0$ then the value of x is

Options :

1. ✔ 6

2. ✖ 5

3. ✖ 7

4. ✖ -6

Question Number : 2 Question Id : 2106888808 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

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

Options :

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

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

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

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

Question Number : 3 Question Id : 2106888809 Display Question Number : Yes Is Question

Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

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

Options :

1. ✔ $11/12$

2. ✖ $-11/12$

3. ✖ $13/12$

4. ✖ $5/4$

Question Number : 4 Question Id : 2106888810 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The solution of the following simultaneous linear equations by using Cramer's rule 3x+4y+5z=18; 2x-y+8z=13; 5x-2y+7z=20 is

Options :

1. ✖ -3, -1,1

2. ✔ 3,1,1

3. ✖ 3,0,1

4. ✖ 3,1,-1

Question Number : 5 Question Id : 2106888811 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The value of $\begin{vmatrix} 441 & 442 & 443 \\ 445 & 446 & 447 \\ 449 & 450 & 451 \end{vmatrix}$ is

Options :

1. ✔ 0

2. ✖ 1

3. ✖ 4

4. ✖ 6

Question Number : 6 Question Id : 2106888812 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$$\frac{3x-1}{(x-1)(x-2)(x-3)} =$$

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 : 7 Question Id : 2106888813 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$\frac{5x+1}{(x+2)(x-1)} =$

Options :

1. ✔ $\frac{3}{x+2}+\frac{2}{x-1}$

2. ✖ $\frac{3}{x+2}-\frac{2}{x-1}$

3. ✖ $\frac{-3}{x+2}+\frac{2}{x-1}$

4. ✖ $\frac{3}{x-2}+\frac{2}{x+1}$

Question Number : 8 Question Id : 2106888814 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$cos100^0 cos40^0 + sin100^0 sin40^0 \ =$

Options :

1. ✔ $\frac{1}{2}$

2. ✖ $-\frac{1}{2}$

3. ✖ $\frac{1}{4}$

4. ✖ $\frac{1}{8}$

Question Number : 9 Question Id : 2106888815 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $sin\theta = \frac{3}{5}, \theta$ *is acute,* then $2tan\theta + 3sec\theta + 4sec\theta\ cosec\theta =$

Options :

1. ✖ -1

2. ✔ $\frac{163}{12}$

3. ✖ $\frac{-163}{12}$

4. ✖ $\frac{13}{12}$

Question Number : 10 Question Id : 2106888816 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

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

Options :

1. ✖ -1

2. ✖ 3

3. ✖ 5

4. ✔ 1

Question Number : 11 Question Id : 2106888817 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $A = \frac{\pi}{6}$ and $B = \frac{\pi}{3}$ then $16\text{Sin}^3A + 8\text{Cos}^3B =$

Options :

1. ✔ 3

2. ✖ 1

3. ✖ -3

4. ✖ 0

Question Number : 12 Question Id : 2106888818 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

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

Options :

1. ✔ $2\cos n\theta$

2. ✖ $-2\cos n\theta$

3. ✖ $3\cos\theta$

4. ✖ $2\sin n\theta$

Question Number : 13 Question Id : 2106888819 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$$\cos\left[\sin^{-1}\left(\frac{1}{2}\right)+\cos^{-1}\left(-\frac{\sqrt{3}}{2}\right)\right] =$$

Options :

1. ✖ 0

2. ✖ 1

3. ✖ 3

4. ✔ -1

Question Number : 14 Question Id : 2106888820 Display Question Number : Yes Is Question

Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

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

Options :

1. ✖ ${}^{110}/_{105}$

2. ✖ $-{}^{121}/_{152}$

3. ✔ ${}^{220}/_{221}$

4. ✖ ${}^{5}/_{4}$

Question Number : 15 Question Id : 2106888821 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If x is an acute angle and $sin(x + 10^0) = cos(3x - 68^0)$ then $x =$

Options :

1. ✖ 48^0

2. ✔ 37^0

3. ✖ 38^0

4. ✖ 10^0

Question Number : 16 Question Id : 2106888822 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$\tan^{-1}(2sin150^0) =$

Options :

1. ✖ π

2. ✖ 3π

3. ✖ $\frac{\pi}{2}$

4. ✔ $\frac{\pi}{4}$

Question Number : 17 Question Id : 2106888823 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

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 : 18 Question Id : 2106888824 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$\left(\frac{\sqrt{3}}{2} + \frac{i}{2}\right)^5 - \left(\frac{\sqrt{3}}{2} - \frac{i}{2}\right)^5 =$

Options :

1. ✔ i

2. ✖ $-i$

3. ✖ $2i$

4. ✖ $-3i$

Question Number : 19 Question Id : 2106888825 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The modulus of the complex number $\left(-1-\sqrt{3}i\right)$ is

Options :

1. ✖ 1

2. ✖ 6

3. ✔ 2

4. ✖ 4

Question Number : 20 Question Id : 2106888826 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If the line $2y = 5x + k$ is a tangent to the parabola $y^2 = 6x$ then $k =$

Options :

1. ✖ $\frac{2}{5}$

2. ✖ $\frac{3}{5}$

3. ✔ $\frac{6}{5}$

4. ✖ $\frac{7}{5}$

Question Number : 21 Question Id : 2106888827 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

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

Options :

1. ✖ 10

2. ✖ 11

3. ✔ 8

4. ✖ 12

Question Number : 22 Question Id : 2106888828 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The eccentricity of the hyperbola $36x^2 - 25y^2 = 900$ is

Options :

1. ✔ $\frac{\sqrt{61}}{5}$

2. ✖ $\frac{9}{2}$

3. ✖ $\frac{3}{2}$

4. ✖ $\frac{5}{2}$

Question Number : 23 Question Id : 2106888829 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The length of the tangent from $(1,3)$ to the circle $x^2 + y^2 - 2x + 4y - 11 = 0$ is

Options :

1. ✖ 2

2. ✔ 3

3. ✖ 5

4. ✖ 4

Question Number : 24 Question Id : 2106888830 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If the line $2x + \sqrt{6}\,y = 2$ touches the hyperbola $x^2 - 2y^2 = 4$ then the point of contact is

Options :

1. ✖ $(4, \sqrt{6})$

2. ✔ $(4, -\sqrt{6})$

3. ✖ $(-4,6)$

4. ✖ $(5,7)$

Question Number : 25 Question Id : 2106888831 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

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

Options :

1. $x^2 - 4x + 8y + 12 = 0$ ✖

2. $x^2 + 5x - 8y - 11 = 0$ ✖

3. $y^2 + 4x - 4y + 12 = 0$ ✔

4. $x^2 - 4x - 8y - 12 = 0$ ✖

Question Number : 26 Question Id : 2106888832 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$\lim_{x \to 0} \frac{a^x - b^x}{x} =$

Options :

1. $\log\left(\frac{b}{a}\right)$ ✖

2. $2\log\left(\frac{b}{a}\right)$ ✖

3. ✔ $\log\left(\frac{a}{b}\right)$

4. ✖ $2\log\left(\frac{a}{b}\right)$

Question Number : 27 Question Id : 2106888833 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $x = a\left[\cos t + log\left(tan\frac{t}{2}\right)\right]$, $y = a\sin t$ then $\frac{dy}{dx}$ is

Options :

1. ✖ $-\tan t$

2. ✔ $\tan t$

3. ✖ $\tan t + \sin t$

4. ✖ $\sin t$

Question Number : 28 Question Id : 2106888834 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If an error of 3% occurs in measuring the side of a cube then the percentage error in its volume is

Options :

1. ✖ 3

2. ✖ 7

3. ✖ 8

4. ✔ 9

Question Number : 29 Question Id : 2106888835 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

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 : 30 Question Id : 2106888836 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

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

Options :

1. ✖ 2

2. ✖ 4

3. ✖ 5

4. ✔ 1

Question Number : 31 Question Id : 2106888837 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

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

Options :

1. ✖ $(1\ ,\ e^{-1/2}\ )$

2. ✖ $(2\ ,\ e^{-1/2}\ )$

3. ✖ $(-\infty, 0)$

4. ✔ $(0\ ,\quad e^{-1/2})$

Question Number : 32 Question Id : 2106888838 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $z = e^{(ax+by)} f(ax - by)$ then $b\frac{\partial z}{\partial x} + a\frac{\partial z}{\partial y} =$

Options :

1. ✖ $-2abz$

2. ✖ $3abz$

3. ✔ 2abz

4. ✖ 5abz

Question Number : 33 Question Id : 2106888839 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The volume of a spherical ball is increasing at the rate of 4π cc/s, then the rate of increase of the radius, when the volume is $288\pi\ cc$ is

Options :

1. ✖ 2 cm/sec

2. ✔ 1/36 cm/sec

3. ✖ 1/ 4 cm/sec

4. ✖ 6 cm/sec

Question Number : 34 Question Id : 2106888840 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The slope of the tangent to the curve $y = 5x^2$ at the point $x = -1$ is

Options :

1. ✖ 10

2. ✖ 7

3. ✔ -10

4. ✖

-9

Question Number : 35 Question Id : 2106888841 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The extreme values of the function $f(x) = x^3 - 9x^2 + 15x - 1$ are

Options :

1. ✔ 6,-26

2. ✖ 3,-26

3. ✖ 6,26

4. ✖ -6,-26

Question Number : 36 Question Id : 2106888842 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$\int_0^2 \sqrt{4 - x^2}\, dx =$

Options :

1. ✖ $\frac{\pi}{2}$

2. ✖ $-\frac{\pi}{2}$

3. ✔ π

4. ✖ $-\pi$

Question Number : 37 Question Id : 2106888843 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The value of $\int x\sqrt{x}\,dx$ on $[0,\infty)$ is

Options :

1. ✔ $\frac{2}{5}x^{5/2}+c$

2. ✖ $-\frac{2}{5}x^{5/2}+c$

3. ✖ $\frac{2}{5}x^{-5/2}+c$

4. ✖ $\frac{2}{3}x^{3/2}+c$

Question Number : 38 Question Id : 2106888844 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The area enclosed between the curve $y^2 = 4x$ 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 : 39 Question Id : 2106888845 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$$\int \frac{dx}{\sqrt{4x^2-4x+2}} =$$

Options :

1. ✖ $-\frac{1}{2}\sinh^{-1}(x-1)+c$

2. ✖ $\frac{1}{2}\sinh^{-1}(2x+1)+c$

3. ✔ $\frac{1}{2}\sinh^{-1}(2x-1)+c$

4. ✖ $\frac{1}{2}\sinh^{-1}(3x-1)+c$

Question Number : 40 Question Id : 2106888846 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

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

Options :

1. ✔ $\pi/4$

2. ✖ $-\pi/4$

3. ✖ $\pi/3$

4. ✖ $\pi/2$

Question Number : 41 Question Id : 2106888847 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The mean value of $\frac{1}{4+x^2}$ on $[-2,2]$ is

Options :

1. ✖ $\frac{\pi}{12}$

2. ✖ $-\frac{\pi}{2}$

3. ✖ $\frac{\pi}{2}$

4. ✔ $\frac{\pi}{16}$

Question Number : 42 Question Id : 2106888848 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

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

Options :

1. ✖ -1

2. ✖ -3

3. ✖ 3

4. ✔ 1

Question Number : 43 Question Id : 2106888849 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The area enclosed by the curves $y = 3x$ and $y = 6x - x^2$ is

Options :

1. ✖ $\frac{7}{2}$ square units

2. ✖ $\frac{5}{2}$ square units

3. ✖ $\frac{3}{2}$ square units

4. ✔ $\frac{9}{2}$ square units

Question Number : 44 Question Id : 2106888850 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The value of $\int \frac{e^x(1+x)}{(2+x)^2}\,dx$ on $I \in R \setminus\{-2\}$ is

Options :

1. ✔ $\frac{e^x}{2+x}+c$

2. ✖ $-\frac{e^x}{2+x}+c$

3. ✖ $\frac{e^x}{2-x}+c$

4. ✖ $\frac{e^{3x}}{2+x}+c$

Question Number : 45 Question Id : 2106888851 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The solution of the homogeneous differential equation $xy^2\,dy-(x^3+y^3)\,dx=0$ is

Options :

1. ✖ $y^3=-3x^3\log(xc)$

2. ✖ $y^3=3x^3\log(x/c)$

3. ✖

$y^3 = 3x^3\log(x^2c)$

4. ✔ $y^3 = 3x^3\log(xc)$

Question Number : 46 Question Id : 2106888852 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The order and degree of the differential equation $\left(\frac{dy}{dx}\right)^2 + 3\left(\frac{dy}{dx}\right) + 2 = 0$ is

Options :

1. ✖ Order=2, degree=2

2. ✖ Order=2, degree=1

3. ✔ order = 1, degree = 2

4. ✖ Order=3, degree=1

Question Number : 47 Question Id : 2106888853 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The necessary and the sufficient condition for the differential equation $M(x,y)dx + N(x,y)dy = 0$ to be an exact equation is

Options :

1. ✖ $\frac{\partial M}{\partial x}=\frac{\partial N}{\partial y}$

2. ✔ $\frac{\partial M}{\partial y}=\frac{\partial N}{\partial x}$

3. ✖ $\frac{\partial M}{\partial y}=-\frac{\partial N}{\partial x}$

4. ✖ $\frac{\partial M}{\partial x}=-\frac{\partial N}{\partial y}$

Question Number : 48 Question Id : 2106888854 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

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

Options :

1. ✔ $\frac{1}{xy}=-x+c$

2. ✖ $\frac{-1}{xy}=-x+c$

3. ✖ $\frac{2}{xy}=x+c$

4. ✖ $\frac{1}{y} = -x + c$

Question Number : 49 Question Id : 2106888855 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The solution of $(D^2 + 10D + 25)y = 0$ is

Options :

1. ✔ $y = e^{-5x}\ (c_1 x + c_2)$

2. ✖ $y = e^{3x}(c_1 \cos 2x + c_2 \sin 2x)$

3. ✖ $y = e^{3x}(c_1 \cos 2x - c_2 \sin 2x)$

4. ✖ $y = e^{3x}(c_1 \cos 3x + c_2 \sin 3x)$

Question Number : 50 Question Id : 2106888856 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

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

Options :

1. ✔ $c_1 e^{-x} + c_2 e^{-2x}$

2. $c_1e^x + c_2e^{2x}$ ✖

3. $c_1e^{-x} + c_2e^{2x}$ ✖

4. $c_1e^{2x} + c_2e^{3x}$ ✖

Physics

Section Id :	210688175
Section Number :	2
Mandatory or Optional :	Mandatory
Number of Questions :	25
Section Marks :	25
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Is Section Default? :	null

Question Number : 51 Question Id : 2106888857 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If we choose velocity **V**, acceleration **A** and force **F** as fundamental physical quantities then how would you express angular momentum in terms of **V**, **A** and **F**.

Options :

1.

✖ $F^1 A^{-1} V^1$

2. ✖ $F^1 A^0 V^1$

3. ✖ $F^1 A^{-1} V^2$

4. ✔ $F^1 A^{-2} V^3$

Question Number : 52 Question Id : 2106888858 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If the velocity of a body at any time 't' is given by the equation $v = A\,t^2 + B\,t + C$, then the unit of A is

Options :

1. ✖ metre/sec

2. ✖ metre/sec^2

3. ✔ metre/sec^3

4. ✖ metre

Question Number : 53 Question Id : 2106888859 Display Question Number : Yes Is Question

Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $|\mathbf{A}| + |\mathbf{B}| = |\mathbf{C}|$ and $\mathbf{A} + \mathbf{B} = \mathbf{C}$, then the angle between vectors $\mathbf{A}$ and $\mathbf{B}$ is

Options :

1. ✖ $90°$

2. ✖ $60°$

3. ✔ $0°$

4. ✖ $120°$

Question Number : 54 Question Id : 2106888860 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The area of triangle with sides as $\mathbf{A} = 2\mathbf{i} + 3\mathbf{j}$ and $\mathbf{B} = \mathbf{i} + 4\mathbf{j}$ is

Options :

1. ✖ 5 units

2. ✖ 10 units

3. ✔ 2.5 units

4. ✖ 20 units

Question Number : 55 Question Id : 2106888861 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If the velocity of a body moving with uniform acceleration is doubled in t_1 sec and tripled in t_2 sec then

Options :

1. ✔ $t_2 = 2\ t_1$

2. ✖ $t_1 = 2\ t_2$

3. ✖ $t_1 t_2 = 2$

4. ✖ $t_2 = 3\ t_1$

Question Number : 56 Question Id : 2106888862 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If a body travels half of its total path in the last second of its fall from rest then the height of its fall is (take $g = 10\ ms^{-2}$)

Options :

1. ✔ 57.1m

2. ✖ 28.26m

3. ✖ 64m

4. ✖ 45m

Question Number : 57 Question Id : 2106888863 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In Olympics, a javelin thrown at an angle 45° attains a maximum height of 30m, then the horizontal distance covered by the javelin is

Options :

1. ✖ 60m

2. ✔ 120m

3. ✖ 100m

4. ✖ 90m

Question Number : 58 Question Id : 2106888864 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The coefficient of friction between the floor and the wooden cube of side length 0.5m is 0.2. The coefficient of friction for a wooden cube of side length 1m is

Options :

1. ✔ 0.2

2. ✖ 0.5

3. ✖ 0.1

4. ✖ 0.4

Question Number : 59 Question Id : 2106888865 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The force required just to move a body up an inclined plane is double the force required just to prevent the body sliding down it. If The coefficient of friction is $1/\sqrt{3}$, then the angle of the plane is

Options :

1. ✖ 45°

2. ✖ 30°

3. ✖ 53°

4. ✔ 60°

Question Number : 60 Question Id : 2106888866 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If an ice block of mass 42Kg moves with initial velocity 4m/s on a rough surface of coefficient of friction 0.1. then the amount of ice melted as a result of friction before the block comes to rest is

Options :

1. ✖ 0.5 gm.

2. ✔ 1 gm.

3. ✖ 8 gm.

4. ✖ 16 gm.

Question Number : 61 Question Id : 2106888867 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A ship of mass 3×10^7 Kg initially at rest is pulled by a force of 5×10^4 N through a distance of 3m. Assuming that the resistance due to water is negligible, the speed of the ship is

Options :

1. ✖ 2 m/s

2. ✔ 0.1 m/s

3. ✖ 0.2 m/s

4. ✖ 10 m/s

Question Number : 62 Question Id : 2106888868 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

When a force $\mathbf{F} = 2\,\mathbf{i} + 4\,\mathbf{j} + 5\,\mathbf{k}$ newton acts on a body and produces a displacement of $\mathbf{S} = 3\,\mathbf{i} + 2\,\mathbf{j} + \mathbf{k}$ metre., then the work done by this force is

Options :

1. ✖ 13 J

2. ✖ 15 J

3. ✖ 17 J

4. ✔ 19 J

Question Number : 63 Question Id : 2106888869 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

An engine expends 45 HP in propelling a car along a level track at 15m/s. The total retarding force acting on the car is

Options :

1. ✔ 2238 N

2. ✖ 3900 N

3. ✖ 3228 N

4. ✖ 4280 N

Question Number : 64 Question Id : 2106888870 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Two bodies A and B of equal masses are suspended from two separate massless springs of spring constants K_1 and K_2 respectively. If the two bodies oscillate such that their maximum velocities are equal, the ratio of amplitude of A to that of B is

Options :

1. ✖ $\frac{K_1}{K_2}$

2. ✖ $\frac{K_2}{K_1}$

3. ✔ $\sqrt{\frac{K_2}{K_1}}$

4. ✖

$\sqrt{\frac{K_1}{K_2}}$

Question Number : 65 Question Id : 2106888871 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A block is on a piston which is moving vertically with a SHM of period 1sec. The amplitude of the motion at which block and the piston will separate is (take $g = 10\,ms^{-2}$)

Options :

1. ✔ 0.25m

2. ✖ 0.5m

3. ✖ 0.75m

4. ✖ 1m

Question Number : 66 Question Id : 2106888872 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A seconds pendulum is working in a lift. If the lift begins to fall freely, then what will be the time period of the pendulum in this case

Options :

1. ✖ 2 sec

2. ✖ 1 sec

3. ✖ 0

4. ✔ infinity

Question Number : 67 Question Id : 2106888873 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A tuning fork of frequency 90 hertz is sounded and moving towards an observer with a velocity equal to one-tenth the velocity of sound; the frequency of the note heard by the observer is

Options :

1. ✔ 100 Hz

2. ✖ 90 Hz

3. ✖ 80 Hz

4. ✖ 110 Hz

Question Number : 68 Question Id : 2106888874 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If the reverberation time of a class room of dimensions 100 x 30 x 10 m^3 is 1.5 sec. then the total absorption of the class room is

Options :

1. ✖ 2300 metric Sabine

2. ✔ 3400 metric Sabine

3. ✖ 1700 metric Sabine

4. ✖ 850 metric Sabine

Question Number : 69 Question Id : 2106888875 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The standard constant volume gas thermometer cannot use any vapour as working substance because

Options :

1. ✖ Vapours are likely to catch fire

2. ✔ Vapours are not perfect gases

3. ✖ It is difficult to obtain pure vapours

4. ✖ The properties are not constant over a long range of temperature

Question Number : 70 Question Id : 2106888876 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The equation of state corresponding to 14g of nitrogen(N_2) at pressure P and temperature T, when occupying a volume V, will be (R is universal gas constant)

Options :

1. ✖ $PV = 7RT$

2. ✔ $PV = \frac{1}{2} RT$

3. ✖ $PV = \frac{1}{4} RT$

4. ✖ $PV = 2\ RT$

Question Number : 71 Question Id : 2106888877 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A vessel contains certain quantity of gas at a pressure of 80 cm of Hg. If $2/5^{th}$ of the mass of gas leaks out at the same temperature, then the pressure of remaining gas is

Options :

1. ✖ 40 cm of Hg

2.

✖ 32 cm of Hg

3. ✔ 48 cm of Hg

4. ✖ 20 cm of Hg

Question Number : 72 Question Id : 2106888878 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

An ideal diatomic gas is heated at constant pressure. The fraction of the heat energy supplied to increase the internal energy of the gas is

Options :

1. ✖ $\frac{2}{5}$

2. ✖ $\frac{3}{5}$

3. ✖ $\frac{3}{7}$

4. ✔ $\frac{5}{7}$

Question Number : 73 Question Id : 2106888879 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

The distance between the atoms of a diatomic gas remains constant. Then its molar specific heat at constant volume is

Options :

1. ✔ $\frac{5}{2}R$

2. ✖ $\frac{3}{2}R$

3. ✖ R

4. ✖ $\frac{1}{2}R$

Question Number : 74 Question Id : 2106888880 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In photo electric effect the energy of the emitted electrons is

Options :

1. ✖ Larger than that of incident photon

2. ✔ Smaller than that of incident photon

3. ✖ Same as that of incident photon

4. ✖ Proportional to the intensity of incident light

Question Number : 75 Question Id : 2106888881 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In water-air system for which colour the critical angle is maximum?

Options :

1. ✔ Red

2. ✖ Violet

3. ✖ Yellow

4. ✖ Same for all colours

Chemistry

Section Id :	210688176
Section Number :	3
Mandatory or Optional :	Mandatory
Number of Questions :	25
Section Marks :	25
Enable Mark as Answered Mark for Review and Clear Response :	Yes

Maximum Instruction Time : 0

Is Section Default? : null

Question Number : 76 Question Id : 2106888882 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The total number of 'm' values possible for a sublevel with l=3 is

Options :

1. ✖ 3

2. ✖ 5

3. ✔ 7

4. ✖ 9

Question Number : 77 Question Id : 2106888883 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The value of Rydberg constant for hydrogen atom (R_H) (in m^{-1}) is

Options :

1. ✖ 1.09×10^{-5}

2. ✖ 1.09×10^{-7}

3. ✖ 1.09×10^{5}

4. ✔ 1.09×10^{7}

Question Number : 78 Question Id : 2106888884 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In which of the following, the orbitals are correctly arranged in the order of increasing energy?

Options :

1. ✖ $3d < 4s < 4d < 5p$

2. ✔ $4s < 3d < 5p < 4d$

3. ✖ $4s < 5p < 3d < 4d$

4. ✖ $3d < 4d < 4s < 5p$

Question Number : 79 Question Id : 2106888885 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

Identify the molecule in which central atom has octet of electrons.

Options :

1. ✔ H_2O

2. ✖ $BeCl_2$

3. ✖ BCl_3

4. ✖ PCl_5

Question Number : 80 Question Id : 2106888886 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The incorrect statement about an ionic compound is

Options :

1. ✖ It is readily soluble in water

2. ✔ It is a conductor in solid state

3. ✖ It has non directional ionic bond

4. ✖ It has high melting point

Question Number : 81 Question Id : 2106888887 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The weight of 0.01 moles of $KClO_3$ (in g) is (K = 39u, Cl = 35.5 u, O = 16u)

Options :

1. ✔ 1.225

2. ✖ 2.45

3. ✖ 3.225

4. ✖ 1.205

Question Number : 82 Question Id : 2106888888 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

100 ml of 0.1M HCl is mixed with 100 ml of 0.1M H_2SO_4 and the solution is diluted to 1.0 L. the Molarity of the final solution is

Options :

1. ✖ 0.01 M

2. ✖ 0.02 M

3. ✔ 0.03 M

4. ✖ 0.04 M

Question Number : 83 Question Id : 2106888889 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The normality of 5.3% (w/v) solution of Na_2CO_3 is (Na = 23u, C = 12u, O = 16u)

Options :

1. ✖ 0.5 N

2. ✖ 3 N

3. ✖ 2 N

4. ✔ 1 N

Question Number : 84 Question Id : 2106888890 Display Question Number : Yes Is Question

Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Identify the substance which can act only as Lewis acid

Options :

1. ✖ HCl

2. ✔ $AlCl_3$

3. ✖ NH_3

4. ✖ H_2O

Question Number : 85 Question Id : 2106888891 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

At 25^0C, 4.0 g of NaOH is Present in 2.0 L solution. The ionic product of water (in mol^2/L^2) at that temperature is

Options :

1. ✔ 1×10^{-14}

2. ✖ 1×10^{-13}

3. ✖ 1×10^{-12}

4. ✖ 5×10^{-14}

Question Number : 86 Question Id : 2106888892 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following is not a strong electrolyte?

Options :

1. ✖ HCl (aq)

2. ✖ $H_2SO_4(aq)$

3. ✖ $CH_3COONa(aq)$

4. ✔ $NH_4OH(aq)$

Question Number : 87 Question Id : 2106888893 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

How many grams of copper is deposited on cathode, when 0.5F current is passed through 100 ml of 0.1 M $CuSO_4$ solution? (Molecular Weight of $CuSO_4$ = 63.5u)

Options :

1. ✖ 63.5

2. ✖ 16.35

3. ✔ 15.875

4. ✖ 31.75

Question Number : 88 Question Id : 2106888894 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The electrolyte commonly used in salt bridge is

Options :

1. ✖ $ZnCl_2$

2. ✔ KCl

3. ✖ $MgCl_2$

4. ✖ $CaSO_4$

Question Number : 89 Question Id : 2106888895 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

At 25^0C, the emf of the cell $Zn|Zn^{2+}(1M)||Cu^{2+}(1M)|Cu$ is __

(Given: $E^0_{Zn^{2+}}|Zn = -0.76$ V & $E^0_{Cu^{2+}}|Cu = +0.34$ V)

Options :

1. ✔ 1.1 V

2. ✖ -0.46 V

3. ✖ -1.1 V

4. ✖ 1.5 V

Question Number : 90 Question Id : 2106888896 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Water gets permanent hardness due to

Options :

1. ✖ NaCl

2. ✖ KCl

3. ✔ $MgCl_2$

4. ✖ $AlCl_3$

Question Number : 91 Question Id : 2106888897 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

2.43 g of $Ca(HCO_3)_2$ (molecular weight is 162u) is present in 20L water sample.

The degree of hardness of water (in mg/l) is__

Options :

1. ✖ 150

2. ✔ 75

3. ✖ 200

4. ✖ 125

Question Number : 92 Question Id : 2106888898 Display Question Number : Yes Is Question

Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In softening of hardwater by ion exchange resin method, the cation exchange resin contains

Options :

1. ✔ -COOH group

2. ✖ -OH group

3. ✖ $-NH_3OH$ group

4. ✖ $-Al_2Si_2O_8$ group

Question Number : 93 Question Id : 2106888899 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Corrosion is

Options :

1. ✖ A chemical process

2. ✖ An electrical process

3. ✔

An electrochemical process

4. ✖ A physical process

Question Number : 94 Question Id : 2106888900 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Galvanization is applying a coating of

Options :

1. ✔ Zn

2. ✖ Pb

3. ✖ Cr

4. ✖ Cu

Question Number : 95 Question Id : 2106888901 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The hetero atom present in neoprene is

Options :

1. ✖ S

2. ✖ O

3. ✔ Cl

4. ✖ F

Question Number : 96 Question Id : 2106888902 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The monomer of Teflon is

Options :

1. ✖ C_2Cl_4

2. ✖ C_2Br_2

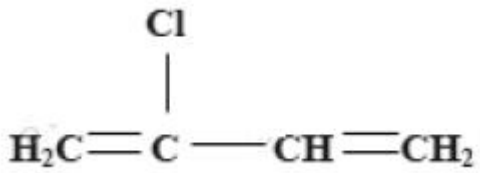
3. ✔ C_2F_4

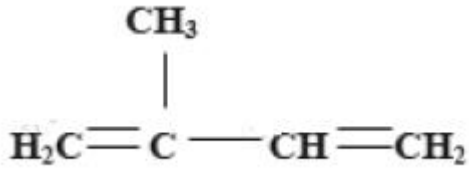
4. ✖ C_2F_6

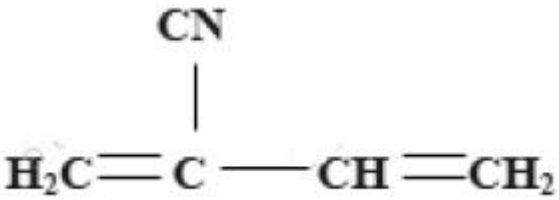
Question Number : 97 Question Id : 2106888903 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

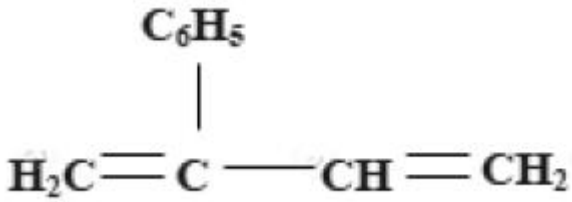
The structure of the monomer of natural rubber is

Options :

1. 

2. 

3. 

4. 

Question Number : 98 Question Id : 2106888904 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The major components of producer gas are

Options :

1. ✖ CO, H_2

2. ✔ CO, N_2

3. ✖ CH_4, CO

4. ✖ CH_4, N_2

Question Number : 99 Question Id : 2106888905 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Depletion of ozone layer causes

Options :

1. ✖ Forest fires

2. ✖ Eutrophication

3. ✖ Bio-Magnification

4. ✔ Skin Cancer

Question Number : 100 Question Id : 2106888906 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following is a secondary pollutant?

Options :

1. ✖ CO_2

2. ✖ SO_2

3. ✔ Peroxyacetyl nitrate

4. ✖ NO_2

Electronics and Instrumentation Engineering

Section Id :	210688177
Section Number :	4
Mandatory or Optional :	Mandatory
Number of Questions :	100
Section Marks :	100

Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Is Section Default? :	null

Question Number : 101 Question Id : 2106888907 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The relation between Volts, Amperes and Watts is

Options :

1. ✖ $\text{Amperes} = \text{Watts} \times \text{Volts}$

2. ✖ $\text{Volts} = \text{Watts} \times \text{Amperes}$

3. ✔ $\text{Watts} = \text{Amperes} \times \text{Volts}$

4. ✖ $\text{Volts} = \text{Amperes} / \text{Watts}$

Question Number : 102 Question Id : 2106888908 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Two resistors R_1 and R_2 give combined resistance of 4.5 Ω when in series and 1 Ωwhen in parallel, the resistances are

Options :

1. ✖ 2 Ω and 2.5 Ω

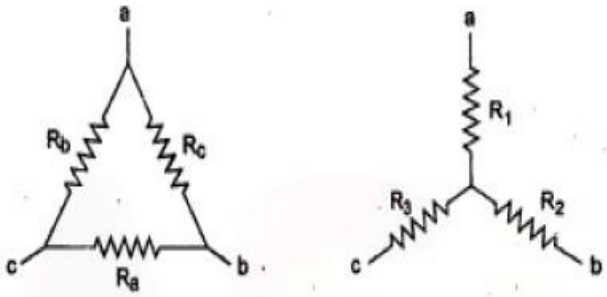
2. ✖ 1 Ω and 3.5 Ω

3. ✔ 1.5 Ω and 3 Ω

4. ✖ 4 Ω and 0.5 Ω

Question Number : 103 Question Id : 2106888909 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In given figure R_a, R_b and R_c are 20 Ω, 10 Ω and 10 Ω respectively. The resistances R_1, R_2 and R_3 in ohms of an equivalent star connection are



Options :

1. ✔ 2.5, 5, 5

2. ✖ 5, 2.5, 5

3. ✖ 5, 5, 2.5

4. ✖ 2.5, 5, 2.5

Question Number : 104 Question Id : 2106888910 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If the flux of DC motor approaches zero

Options :

1. ✖ Its speed will approach zero

2. ✖ Its speed will remain unchanged

3. ✖ The motor will stop

4. ✔ The motor will tend to run at infinite speed

Question Number : 105 Question Id : 2106888911 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A generator may loose residual magnetism due to

Options :

1. ✖ Varying loads

2. ✖ Over excitation

3. ✖ Vibrations

4. ✔ Heating

Question Number : 106 Question Id : 2106888912 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A step up transformer increases

Options :

1. ✖ Power

2. ✖ Power factor

3. ✔ Voltage

4. ✖ Frequency

Question Number : 107 Question Id : 2106888913 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A solar cell is actually a device which utilizes

Options :

1. ✖ Photoconductive effect

2. ✔ Photovoltaic effect

3. ✖ Photo emissive effect

4. ✖ Photo resistive effect

Question Number : 108 Question Id : 2106888914 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Opto-coupler is used to

Options :

1. ✖ Reduce SCR turn off time

2. ✖ Protect IGBTs against dv/dt

3. ✖ Regulate gate signal

4. ✔ Isolate gating circuitry from power lines

Question Number : 109 Question Id : 2106888915 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Induction heating takes place in

Options :

1. ✖ Insulating materials

2. ✖ Conducting and magnetic materials

3. ✖ Conducting but non-magnetic materials

4. ✔ Conducting materials may be magnetic or non-magnetic

Question Number : 110 Question Id : 2106888916 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The power factor will be leading in case of

Options :

1. ✔ Dielectric heating

2. ✖ Induction heating

3. ✖ Electric arc heating

4. ✖ Resistance heating

Question Number : 111 Question Id : 2106888917 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The main drawback of resistance welding is

Options :

1. ✔ High initial as well as maintenance cost

2. ✖ Difficult shapes and sections cannot be welded

3. ✖ Only similar metals can be welded

4. ✖ Parent metal is affected

Question Number : 112 Question Id : 2106888918 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A negative feedback closed loop system is supplied to an input of 5 V. The system has a forward gain of 1 and a feedback gain of 1. What is the output voltage?

Options :

1. ✖ 1 V

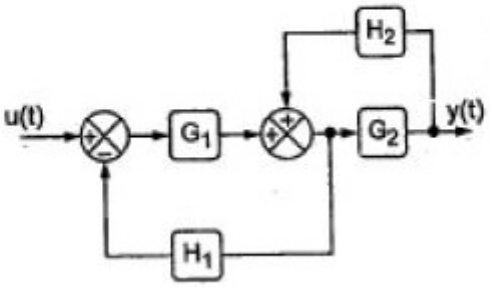
2. ✖ 1.5 V

3. ✖ 2 V

4. ✔ 2.5 V

Question Number : 113 Question Id : 2106888919 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The system transfer function for the block diagram shown is



Options :

1. ✔ $\frac{G_1G_2}{1-G_2H_2+G_1H_1}$

2. ✖ $\frac{G_1G_2}{1-G_1H_1+G_2H_1}$

3. ✖ $\frac{G_1G_2H_1}{1+G_2H_1+G_1H_1}$

4. ✖ $\frac{G_1G_2H_1}{1+G_2H_2+G_1H_1}$

Question Number : 114 Question Id : 2106888920 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In time domain specifications, the time delay is the time required for the response to reach

Options :

1. ✖ 75% of the final value

2. ✔ 50% of the final value

3. ✖ 25% of the final value

4. ✖ 100% of the final value

Question Number : 115 Question Id : 2106888921 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The initial slope of Bode plot for a transfer function having no poles at the origin is

Options :

1. ✖ -10 dB/decade

2. ✖ +10 dB/decade

3. ✖ -20 dB/decade

4. ✔ 0 dB/decade

Question Number : 116 Question Id : 2106888922 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In an intrinsic semiconductor

Options :

1. ✖ There are no holes in the material

2. ✖ The number of holes is too small

3. ✔ Electrons in the material are neutralized by holes

4. ✖ There are no electrons in the material

Question Number : 117 Question Id : 2106888923 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The width of depletion layer of a P-N junction

Options :

1. ✖ Decreases with light doping

2. ✖ Increases with heavy doping

3. ✖ Is independent of applied voltage

4. ✔ Is increased under reverse bias

Question Number : 118 Question Id : 2106888924 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Avalanche breakdown is primarily dependent on the phenomenon of

Options :

1. ✔ Collision

2. ✖ Doping

3. ✖ Ionization

4. ✖ Recombination

Question Number : 119 Question Id : 2106888925 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Zener diode is used as the main component in DC power supply for

Options :

1. ✖ Rectification

2. ✔ Voltage regulation

3. ✖ Filter action

4. ✖ Speed regulation

Question Number : 120 Question Id : 2106888926 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In an N-P-N transistor, the leakage current is due to

Options :

1. ✖ Flow of minority carriers from collector to emitter

2. ✖ Flow of holes from base to emitter

3. ✖ Flow of electrons from collector to base

4. ✔ Flow of holes from collector to base

Question Number : 121 Question Id : 2106888927 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The unity gain bandwidth f_T of FET is given by _____

Options :

1. ✖ $g_m/2pC_{sg}$

2. ✖ $C_{sg}/2pg_m$

3. ✖ $g_m/2pfC_{sg}$

4. ✔ $C_{sg}/2pfg_m$

Question Number : 122 Question Id : 2106888928 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The effective channel length of a MOSFET in saturation decreases with increase in

Options :

1. ✖ Gate voltage

2. ✔ Drain voltage

3. ✖ Source voltage

4. ✖ Body voltage

Question Number : 123 Question Id : 2106888929 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The cascade amplifier is a multistage configuration of

Options :

1. ✖ CC-CB

2. ✔ CE-CB

3. ✖ CC-CC

4. ✖ CE-CC

Question Number : 124 Question Id : 2106888930 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The circuit efficiency of a class A amplifier can be increased with

Options :

1. ✖ Direct coupled load

2. ✖ Low DC power input

3. ✔ Transformer coupled load

4. ✖ Low rating resistor

Question Number : 125 Question Id : 2106888931 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In an R-C phase shift oscillator, the minimum number of R-C networks to be connected in cascade will be

Options :

1. ✖ One

2. ✖ Two

3. ✔ Three

4. ✖ Four

Question Number : 126 Question Id : 2106888932 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In a Wien bridge oscillator, if the resistances in the positive feedback circuit is decreased, then the frequency

Options :

1. ✖

Decreases

2. ✔ Increases

3. ✖ Remains the same

4. ✖ Fluctuates in an erratic fashion

Question Number : 127 Question Id : 2106888933 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The multivibrator circuit which possesses one stable state and one quasi stable state is

Options :

1. ✖ Astable

2. ✔ Monostable

3. ✖ Bistable

4. ✖ Schmitt trigger circuit

Question Number : 128 Question Id : 2106888934 Display Question Number : Yes Is Question

Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The decimal equivalent of hexadecimal number 2AOF is

Options :

1. ✖ 17670

2. ✖ 17607

3. ✖ 17067

4. ✔ 10767

Question Number : 129 Question Id : 2106888935 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

When an input electrical signal A=101010 is applied to a NOT gate, the output signal will be _____

Options :

1. ✖ 111010

2. ✖ 101010

3. ✔ 010101

4. ✖ 101011

Question Number : 130 Question Id : 2106888936 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

To add two m-bit numbers, the required number of half adders is

Options :

1. ✔ $2m-1$

2. ✖ 2^m-1

3. ✖ $2m+1$

4. ✖ $2m$

Question Number : 131 Question Id : 2106888937 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A J-K flip flop can be made from an S-R flip-flop by using two additional

Options :

1. ✔ NAND gates

2. ✖ OR gates

3. ✖ NOT gates

4. ✖ NOR gates

Question Number : 132 Question Id : 2106888938 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

D flip flop can be configured from a

Options :

1. ✔ J-K flip flop and an inverter

2. ✖ RS flip flop

3. ✖ RS flip flop and an inverter

4. ✖ Combination JK and RS flip flop

Question Number : 133 Question Id : 2106888939 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following counter results in least delay?

Options :

1. ✖ Ring counter

2. ✖ Ripple counter

3. ✔ Synchronous counter

4. ✖ Asynchronous counter

Question Number : 134 Question Id : 2106888940 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A successive approximation ADC has a resolution of 20 mV. What is its digital output for an analog input of 2.17 V?

Options :

1. ✖ 0110 1100

2. ✖ 0110 1101

3. ✖ 0110 1011

4. ✔ 0111 0100

Question Number : 135 Question Id : 2106888941 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The resolution of digital to analog converter is governed by which one of the following (where 'n' is the number of digital inputs)?

Options :

1. ✖ $2n$

2. ✖ $2/n$

3. ✔ 2^n

4. ✖ $\sqrt{2^n}$

Question Number : 136 Question Id : 2106888942 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A ring counter consisting of five flip-flops will have

Options :

1. ✔ 5 states

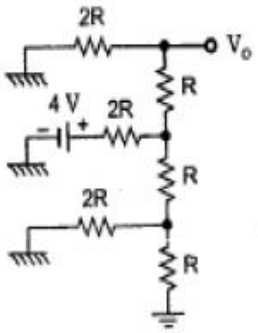
2. ✖ 10 states

3. ✖ 32 states

4. ✖ Infinite states

Question Number : 137 Question Id : 2106888943 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What is the output voltage 'V_0' of the following R-2R decoder ladder network?



Options :

1. ✔ 1 V

2. ✖ 2 V

3. ✖ 3 V

4. ✖ 4 V

Question Number : 138 Question Id : 2106888944 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

To increase current measurement range of an ammeter, it is

Options :

1. ✖ Shunted by a high resistance

2. ✖

Put in series with a high resistance

3. ✖ Put in series with a low resistance

4. ✔ Shunted by a low resistance

Question Number : 139 Question Id : 2106888945 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Beam of electrons in a cathode ray tube emits because of

Options :

1. ✖ Secondary emission

2. ✔ Thermionic emission

3. ✖ Diffusion

4. ✖ Post acceleration

Question Number : 140 Question Id : 2106888946 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The purpose of providing acquadag in CRT is to

Options :

1. ✖ Increase fluorescence

2. ✖ Increase phosphorescence

3. ✖ Protect burning of screen

4. ✔ Remove electrostatic charge accumulation

Question Number : 141 Question Id : 2106888947 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The sine wave output of a function generator is fed to both the horizontal (X) and vertical (Y) inputs of a CRO. What will be the pattern on the cathode ray screen?

Options :

1. ✖ A circle

2. ✖ An ellipse

3. ✔ A straight line with 45^0 slope

4. ✖ Sinusoidal

Question Number : 142 Question Id : 2106888948 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The Q-meter works on the principle of

Options :

1. ✖ Mutual inductance

2. ✖ Self-inductance

3. ✔ Series resonance

4. ✖ Parallel resonance

Question Number : 143 Question Id : 2106888949 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In distortion factor meter, the filter is used to suppress

Options :

1. ✖ DC component

2. ✖ Odd harmonics

3. ✖ Even harmonics

4. ✔ Fundamentals

Question Number : 144 Question Id : 2106888950 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The precision of a ramp type digital voltmeter depends on

Options :

1. ✔ Frequency of the generator and slope of the ramp

2. ✖ Frequency of the generator

3. ✖ Slope of the ramp

4. ✖ Switching time of the gate

Question Number : 145 Question Id : 2106888951 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Spectrum analyzer is a combination of

Options :

1. ✔ Narrowband superheterodyne receiver and CRO

2. ✖ Signal generator and CRO

3. ✖ Oscillator and wave analyzer

4. ✖ VTVM and CRO

Question Number : 146 Question Id : 2106888952 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The total operating range of the transducer is called

Options :

1. ✔ Span

2. ✖ Offset

3. ✖ Threshold

4. ✖ Drift

Question Number : 147 Question Id : 2106888953 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The ability to give same output reading when same input value is applied repeatedly is known as

Options :

1. ✖ Accuracy

2. ✖ Sensitivity

3. ✖ Stability

4. ✔ Repeatability

Question Number : 148 Question Id : 2106888954 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

LVDT is a _____ transducer

Options :

1. ✔ Displacement

2. ✖ Photoelectric

3. ✖ Thermal

4. ✖ Chemical

Question Number : 149 Question Id : 2106888955 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

An electrical Resistance Strain Gauge has a gauge factor of 2. If the strain gauge undergoes a strain of 0.1%, the percentage change in its electrical resistance is

Options :

1. ✖ 0.3%

2. ✖ 0.4%

3. ✖ 0.5%

4. ✔ 0.2%

Question Number : 150 Question Id : 2106888956 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Piezo electric transducer work when we apply _____ to it

Options :

1. ✖ Illumination

2. ✖ Heat

3. ✔ Mechanical force

4. ✖ Vibration

Question Number : 151 Question Id : 2106888957 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which among the following is the formula for volumetric flow rate?

Options :

1. ✖ $Q=V/A$

2. ✔ $Q=AV$

3. ✖ $Q=A+V$

4. ✖ $Q=A-V$

Question Number : 152 Question Id : 2106888958 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following flow metering instrument is an area meter?

Options :

1. ✖ Venturi meter

2. ✔ Rota meter

3. ✖ Pitot tube

4. ✖ Hot wire anemometer

Question Number : 153 Question Id : 2106888959 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The level of liquid under pressure can be determined by using

Options :

1. ✖ Bubbler system

2. ✖ Diaphragm box system

3. ✔ Differential Pressure manometer

4. ✖ Air trap system

Question Number : 154 Question Id : 2106888960 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The thermocouple circuit which is used to measure temperature works on

Options :

1. ✖ Thomson effect

2. ✖ Peltier effect

3. ✖ Siemen's effect

4. ✔ Seeback effect

Question Number : 155 Question Id : 2106888961 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following device has negative temperature coefficient of resistance?

Options :

1. ✔ Thermistor

2. ✖ Thermocouple

3. ✖ RTD

4. ✖ Diaphragm

Question Number : 156 Question Id : 2106888962 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Sensing element in the Thermometer must provide

Options :

1. ✖ Small change in resistance

2. ✖ No change in resistance

3. ✔ Large change in resistance

4. ✖ Infinite change in resistance

Question Number : 157 Question Id : 2106888963 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The Nernst equation is given by which of the following statements?

Options :

1. ✔ $E=E_0+2.303\ RT/F\ \log CH$

2. ✖ $E=E_0-2.303\ RT/F\ \log CH$

3. ✖ $E=E_0+2.303\ RT\times F\ \log CH$

4. ✖ $E=E_0-2.303\ RT\times F\ \log CH$

Question Number : 158 Question Id : 2106888964 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Electromagnetic flow meter is based on the principle of

Options :

1. ✖ Lenz law

2. ✔ Faraday's law

3. ✖ Kirchhoff's law

4. ✖ Ohms law

Question Number : 159 Question Id : 2106888965 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Humidity measuring instrument is known as

Options :

1. ✖ Orifice meter

2. ✖ Rota meter

3. ✖ Pyro meter

4. ✔ Hygrometer

Question Number : 160 Question Id : 2106888966 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What is the function of a butterfly valve?

Options :

1. ✖ On/Off control

2. ✔ Flow regulation

3. ✖ Pressure control

4. ✖ Hydraulic control

Question Number : 161 Question Id : 2106888967 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following is used to restrict air flow?

Options :

1. ✔ Throttle valve

2. ✖ Direction control valve

3. ✖ Shuttle valve

4. ✖ Single acting cylinder

Question Number : 162 Question Id : 2106888968 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

_____ is powered by a motor which converts mechanical energy into torque

Options :

1. ✖ Hydraulic actuator

2. ✖ Pneumatic actuator

3. ✔ Electric actuator

4. ✖ Smart transmitter

Question Number : 163 Question Id : 2106888969 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Positioner is used in the range of _____ to control the pressure in Pneumatic actuator

Options :

1. ✔ 3 to 5 psi

2. ✖ 1 to 12 psi

3. ✖ 4 to 20 mA

4. ✖ 1 to 16 mA

Question Number : 164 Question Id : 2106888970 Display Question Number : Yes Is Question

Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The On/Off control is a _____ system

Options :

1. ✖ Digital

2. ✖ Linear

3. ✖ Non-linear

4. ✔ Discontinuous

Question Number : 165 Question Id : 2106888971 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Process Degrees of freedom indicates

Options :

1. ✔ The maximum number of controllers to be used in the process

2. ✖ The minimum number of controllers to be used in the process

3. ✖ Maximum and minimum number of controllers to be used in the process

4. ✖ No information about controllers

Question Number : 166 Question Id : 2106888972 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following controllers has maximum offset?

Options :

1. ✖ P-I controller

2. ✔ P controller

3. ✖ P-D controller

4. ✖ P-I-D controller

Question Number : 167 Question Id : 2106888973 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following controller is known as reset controller?

Options :

1. ✖ P controller

2. ✖ D controller

3. ✔ I controller

4. ✖ R controller

Question Number : 168 Question Id : 2106888974 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following control action cannot be used alone in any process control system design?

Options :

1. ✖ P controller

2. ✔ D controller

3. ✖ I controller

4. ✖ R controller

Question Number : 169 Question Id : 2106888975 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

_____ mode of control action is known as composite mode

Options :

1. ✖ P-I

2. ✖ P-D

3. ✖ I-D

4. ✔ P-I-D

Question Number : 170 Question Id : 2106888976 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A control system composed of two loops where the set point of one loop (inner loop) is the output of the controller of the other loop (outer loop) is called as

Options :

1. ✔ Cascade control system

2. ✖ Ratio control system

3. ✖ Feedback control system

4. ✖ Feed forward control system

Question Number : 171 Question Id : 2106888977 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The objective of _____ control system is to maintain the ratio of two variables at a specified value

Options :

1. ✖ Cascade

2. ✖ Servo

3. ✔ Ratio

4. ✖ Parallel

Question Number : 172 Question Id : 2106888978 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The following line diagram represents

Options :

1. ✖ Pneumatic signal

2. ✖ Hydraulic signal

3. ✔ Electric signal

4.

✖ Sonic signal

Question Number : 173 Question Id : 2106888979 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following letter code will be used to represent Flow Controller?

Options :

1. ✔ FC

2. ✖ TF

3. ✖ TT

4. ✖ FT

Question Number : 174 Question Id : 2106888980 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Light travels along the optical fibers by which of the following mechanism?

Options :

1. ✖ Refraction

2. ✖ Reflection

3. ✖ Scattering

4. ✔ Total internal reflection

Question Number : 175 Question Id : 2106888981 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In an AM wave V_{max}=10 V and V_{min}=5 V. The percentage of modulation is

Options :

1. ✖ 20

2. ✔ 33.3

3. ✖ 50

4. ✖ 75

Question Number : 176 Question Id : 2106888982 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What is the power contained in SSB transmission when the carrier power is 1 kW and the modulation index is 0.3?

Options :

1. ✔ 22.5 W

2. ✖ 90 W

3. ✖ 300 W

4. ✖ 1 kW

Question Number : 177 Question Id : 2106888983 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

An ideal op amp requires infinite bandwidth because

Options :

1. ✔ Signals can be amplified without attenuation

2. ✖ Output common mode noise voltage is zero

3. ✖ Output voltage occurs simultaneously with input voltage changes

4. ✖ Output can drive infinite number of devices

Question Number : 178 Question Id : 2106888984 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In a Wien bridge oscillator, the positive feedback attenuation is

Options :

1. ✖ 3

2. ✖ -29

3. ✖ 1/29

4. ✔ 1/3

Question Number : 179 Question Id : 2106888985 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following signal is generated by using a monostable multivibrator?

Options :

1. ✖ PCM

2. ✔ PWM

3. ✖ TDM

4. ✖ PAM

Question Number : 180 Question Id : 2106888986 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A Schmitt trigger converts slowly varying waveform into

Options :

1. ✖ Sine wave

2. ✖ Saw tooth wave

3. ✖ Triangular wave

4. ✔ Square wave

Question Number : 181 Question Id : 2106888987 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

For a step input, the output of an Integrator is

Options :

1. ✖ A pulse

2. ✖ A triangular wave

3. ✔ A ramp

4. ✖ A spike

Question Number : 182 Question Id : 2106888988 Display Question Number : Yes Is Question

Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Gas chromatography technique is applicable for separation of

Options :

1. ✔ Low molecular weight gaseous species

2. ✖ High molecular weight gaseous species

3. ✖ Low molecular weight liquid species

4. ✖ High molecular weight liquid species

Question Number : 183 Question Id : 2106888989 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Beer Lambert's law gives the relation between which of the following?

Options :

1. ✖ Reflected radiation and concentration

2. ✖ Energy absorption and reflected radiation

3. ✖ Scattered radiation and concentration

4. ✔ Energy absorption and concentration

Question Number : 184 Question Id : 2106888990 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following columns are not used in liquid or high performance liquid chromatography?

Options :

1. ✔ Capillary column

2. ✖ Separation column

3. ✖ Analytical column

4. ✖ Guard column

Question Number : 185 Question Id : 2106888991 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Bolometer (a type of detector) is also known as

Options :

1. ✖ Golay cell

2. ✖ Resistance Temperature Detector

3. ✔ Thermistor

4. ✖ Thermocouple

Question Number : 186 Question Id : 2106888992 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following is not a technique for preparing solid samples in IR spectroscopy?

Options :

1. ✖ Solids run in solution

2. ✖ Solid films

3. ✖ Mull technique

4. ✔ Thin films

Question Number : 187 Question Id : 2106888993 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Lambert's law states that the intensity of light decreases with respect to

Options :

1. ✖ Volume

2. ✖ Distance

3. ✖ Composition

4. ✔ Concentration

Question Number : 188 Question Id : 2106888994 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Needle electrode is used to measure

Options :

1. ✔ EMG

2. ✖ EKG

3. ✖ EEG

4. ✖ EOG

Question Number : 189 Question Id : 2106888995 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Electrodes to measure EEG are placed on

Options :

1. ✖ Forehead

2. ✔ Scalp

3. ✖ Cheek

4. ✖ Ears

Question Number : 190 Question Id : 2106888996 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Recording electrical activities associated with heart is known as

Options :

1. ✖ EEG

2. ✖ EOG

3. ✔ ECG

4. ✖ EMG

Question Number : 191 Question Id : 2106888997 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The pacemaker of a normal heart is the

Options :

1. ✖ Purkinje fibers

2. ✔ SA node

3. ✖ AV bundle

4. ✖ AV node

Question Number : 192 Question Id : 2106888998 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In a normal X-ray machine, X-rays are produced by

Options :

1. ✖ Super heating of an element

2. ✔ Bombardment of cathode rays on a radioactive material

3. ✖ Nuclear fusion

4. ✖ Nuclear fission

Question Number : 193 Question Id : 2106888999 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following flag in 8051 microcontroller is not available?

Options :

1. ✖ Carry

2. ✖ Auxiliary carry

3. ✖ Over flow

4. ✔ Zero

Question Number : 194 Question Id : 2106889000 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

_____ register is used to configure the timers in 8051 microcontroller

Options :

1. ✖ TCON

2. ✖ SCON

3. ✔ TMOD

4. ✖ SBUF

Question Number : 195 Question Id : 2106889001 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

MOV @R1, A is an example for

Options :

1. ✖ Direct addressing mode

2. ✖ Immediate addressing mode

3. ✖ Register addressing mode

4. ✔ Register indirect addressing mode

Question Number : 196 Question Id : 2106889002 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which timer and mode is used for serial communication?

Options :

1. ✖ 0 and 1

2. ✖ 0 and 2

3. ✖ 1 and 1

4. ✔ 1 and 2

Question Number : 197 Question Id : 2106889003 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following instruction is used to jump anywhere from 0000 to FFFF memory location?

Options :

1. ✖ ACALL

2. ✖ LCALL

3. ✔ LJMP

4. ✖ SJMP

Question Number : 198 Question Id : 2106889004 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

PLC stands for

Options :

1. ✖ Pressure Load Control

2. ✔ Programmable Logic Controller

3. ✖ Pneumatic Logic Capstan

4. ✖ PID Loop Controller

Question Number : 199 Question Id : 2106889005 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In a PLC, the scan time refers to the amount of time in which

Options :

1. ✖ The technician enter the program

2. ✖ Timers and counters are indexed by

3. ✖ One rung of ladder logic takes to complete

4. ✔ The entire program takes to execute

Question Number : 200 Question Id : 2106889006 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In PLC, Ladder logic programming consists of

Options :

1. ✔ Virtual relay contacts and coils

2. ✖ Logic gate symbols with connecting lines

3. ✖ Function blocks with connecting lines

4. ✖ Text based code