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

Mathematics

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

Question Number : 1 Question Id : 67809438657 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

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

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

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

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

Question Number : 2 Question Id : 67809438658 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. A. (adj A)

2. A× (adj A)

3. A- (adj A)

4. A+ (adj A)

Question Number : 3 Question Id : 67809438659 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

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

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

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

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

Question Number : 4 Question Id : 67809438660 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. $11/12$

2. $-11/12$

3. $13/12$

4. $5/4$

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

Options :

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

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

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

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

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

Options :

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

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

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

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

Resolve $\dfrac{5x^2+1}{x^3-1}$ into partial fractions

Options :

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

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

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

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

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

Options :

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

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

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

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

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

Options :

1. 3

2. 1

3. -3

4. 0

Question Number : 10 Question Id : 67809438666 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

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

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

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

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

Question Number : 11 Question Id : 67809438667 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

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

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

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

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

Question Number : 12 Question Id : 67809438668 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. $\cos 20^0$

2. $\tan 65^0$

3. $\tan 60^0$

4. $\tan 62^0$

Question Number : 13 Question Id : 67809438669 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 : 14 Question Id : 67809438670 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. -1

2. 3

3. 5

4. 1

Question Number : 15 Question Id : 67809438671 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

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

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

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

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

Question Number : 16 Question Id : 67809438672 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. -2

2. 3

3. 2

4. 5

Question Number : 17 Question Id : 67809438673 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. C^3

2. C

3. C^5

4. C^2

Question Number : 18 Question Id : 67809438674 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. $2 \cos n\theta$

2. $-2 \cos n\theta$

3. $3 \cos \theta$

4. $2 \sin n\theta$

Question Number : 19 Question Id : 67809438675 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

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

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

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

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

Question Number : 20 Question Id : 67809438676 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. 12

4. 13

Question Number : 21 Question Id : 67809438677 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 : 22 Question Id : 67809438678 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 : 67809438679 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. 9 units

2. 5 units

3. 6 units

4. 13 units

Question Number : 24 Question Id : 67809438680 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

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

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

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

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

Question Number : 25 Question Id : 67809438681 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

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

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

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

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

Question Number : 26 Question Id : 67809438682 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 : 27 Question Id : 67809438683 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. $\dfrac{5\cosh x}{(3+2\sinh x)^2}$

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

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

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

Question Number : 28 Question Id : 67809438684 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 : 29 Question Id : 67809438685 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. $-nu$

2. $n^2 u$

3. nu

4. $nu^2 + u$

Question Number : 30 Question Id : 67809438686 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. $\tan \theta = 2$

2. $\sec \theta = 2$

3. $\cos \theta = 1$

4. $\sin \theta = 3$

Question Number : 31 Question Id : 67809438687 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. 13

2. 12

3. 10

4. 15

Question Number : 32 Question Id : 67809438688 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. 27 square units

2. 33 square units

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

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

Question Number : 33 Question Id : 67809438689 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

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

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

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

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

Question Number : 34 Question Id : 67809438690 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. 6,-26

2. 3,-26

3. 6,26

4. -6,-26

Question Number : 35 Question Id : 67809438691 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. 2

2. 4

3. 5

4. 1

Question Number : 36 Question Id : 67809438692 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. $x \log x - \dfrac{x^2}{2} + c$

Question Number : 37 Question Id : 67809438693 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. $\log 2$

2. $\log 3$

3. $-\log 2$

4. $\log n$

Question Number : 38 Question Id : 67809438694 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

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

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

3. $2 \sin x + c$

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

Question Number : 39 Question Id : 67809438695 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

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

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

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

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

Question Number : 40 Question Id : 67809438696 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\int_{1}^{\frac{\pi}{2}} \sin^2 x \, dx$ is

Options :

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

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

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

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

Question Number : 41 Question Id : 67809438697 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. $-\dfrac{20}{3}$

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

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

Question Number : 42 Question Id : 67809438698 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. -1

2. -3

3. 3

4. 1

Question Number : 43 Question Id : 67809438699 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. $\pi/4$

2. $-\pi/4$

3. $\pi/3$

4. $\pi/2$

Question Number : 44 Question Id : 67809438700 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. $\dfrac{-e^{-x}}{12}$

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

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

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

Question Number : 45 Question Id : 67809438701 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

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

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

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

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

Question Number : 46 Question Id : 67809438702 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

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

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

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

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

Question Number : 47 Question Id : 67809438703 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The complementary function of $(D^2 + 3D + 2)y = 8\sin 5x$ 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. $c_1 e^{2x} + c_2 e^{3x}$

Question Number : 48 Question Id : 67809438704 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

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

2. $x^2 y = c$

3. $x^3 y = c$

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

Question Number : 49 Question Id : 67809438705 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

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

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

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

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

Question Number : 50 Question Id : 67809438706 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

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

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

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

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

Physics

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

Question Number : 51 Question Id : 67809438707 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

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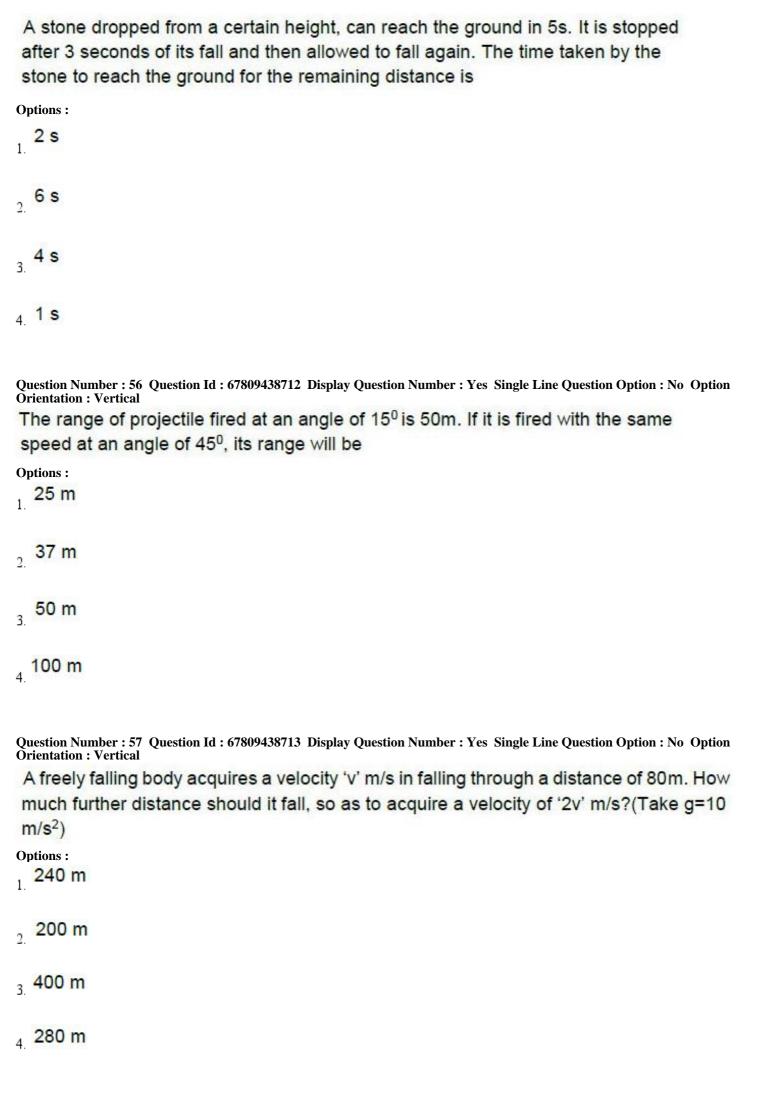
1. MLT^{-1}, MLT^{-3}

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

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

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

Question Number : 52 Question Id : 67809438708 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. Young's modulus=N/m^2

2. Surface tension=N/m

3. Pressure = N/m^2

4. Energy=kg m/s

Question Number : 53 Question Id : 67809438709 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. B

2. C

3. B.C

4. BxC

Question Number : 54 Question Id : 67809438710 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. 60^0

2. 90^0

3. 120^0

4. 30^0

Question Number : 55 Question Id : 67809438711 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A stone dropped from a certain height, can reach the ground in 5s. It is stopped after 3 seconds of its fall and then allowed to fall again. The time taken by the stone to reach the ground for the remaining distance is

Options :

1. 2 s

2. 6 s

3. 4 s

4. 1 s

Question Number : 56 Question Id : 67809438712 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. 25 m

2. 37 m

3. 50 m

4. 100 m

Question Number : 57 Question Id : 67809438713 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. 240 m

2. 200 m

3. 400 m

4. 280 m

Question Number : 58 Question Id : 67809438714 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. 50 m

2. 60 m

3. 40 m

4. 10 m

Question Number : 59 Question Id : 67809438715 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. 40 N

2. 60 N

3. 80 N

4. 140 N

Question Number : 60 Question Id : 67809438716 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. 9.8N

2. 0.78 x 9.8 N

3. 9.8 x √3 N

4. 0.7 x 9.8√3 N

Question Number : 61 Question Id : 67809438717 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. 40 J

2. 1 J

3. 80 J

4. 20 J

Question Number : 62 Question Id : 67809438718 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. 3.5

2. 5.3

3. 4.3

4. 5.8

Question Number : 63 Question Id : 67809438719 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. Hydel

2. Solar

3. Tidal

4. Geothermal

Question Number : 64 Question Id : 67809438720 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

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

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

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

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

Question Number : 65 Question Id : 67809438721 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. 0.2 s

2. 0.41 s

3. 0.31 s

4. 0.5 s

Question Number : 66 Question Id : 67809438722 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. 819^0 C

2. 850^0C

3. 919^0C

4. 900^0C

Question Number : 67 Question Id : 67809438723 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the source of sound moves towards an observer, then

Options :

1. The frequency of the source is increased

2. The velocity of sound in the medium is increased

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

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

Question Number : 68 Question Id : 67809438724 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A cinema hall has a volume of 7500 m³. The total absorption in the hall if the reverberation time of 1.5 s is to be maintained is

Options :

1. 800 OWU

2. 925 OWU

3. 950 OWU

4. 825 OWU

Question Number : 69 Question Id : 67809438725 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. 2.5 x 273 x R

2. 3.5 x 273 x R

3. 2.5 x 546 x R

4. 3.5 x 546 x R

Question Number : 70 Question Id : 67809438726 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A vessel contains a gas at a temperature of 27^0C and a pressure of 20 atm. If one half of the gas is released and the temperature of the remaining gas is raised by 50^0C, the new pressure will be

Options :

1. 12.24 atm

2. 11.67 atm

3. 13.79 atm

4. 11 atm

Question Number : 71 Question Id : 67809438727 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. 3.595 x 10^7 erg

2. 3 x 10^7 erg

3. 4.5 x 10^7 erg

4. 2.595 x 10^7 erg

Question Number : 72 Question Id : 67809438728 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In all reversible processes entropy of the system

Options :

1. decreases

2. increases

3. remains constant

4. remains zero

Question Number : 73 Question Id : 67809438729 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If one mole of a monoatomic gas ('Y'=5/3) is mixed with one mole of a diatomic gas ('Y'=7/5), the value of 'Y' for the mixture is

Options :

1. 1.40

2. 1.50

3. 1.53

4. 3.07

Question Number : 74 Question Id : 67809438730 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. 1 eV

2. 1.52 eV

3. 2.52 eV

4. 1.77 eV

Question Number : 75 Question Id : 67809438731 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A superconducting material exhibits

Options :

1. zero conductivity and complete diamagnetism

2. zero resistivity and complete paramagnetism

3. infinite conductivity and complete paramagnetism

4. zero resistivity and complete diamagnetism

Question Number : 76 Question Id : 67809438732 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. Stark effect

2. Pauli Exclusion Principle

3. Zeeman effect

4. Aufbau Principle

Question Number : 77 Question Id : 67809438733 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Bohr's model can explain

Options :

1. The spectrum of hydrogen atom only

2. The spectrum of hydrogen molecule

3. The solar spectrum

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

Question Number : 78 Question Id : 67809438734 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. 2

2. 6

3. 10

4. 14

Question Number : 79 Question Id : 67809438735 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

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

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

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

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

Question Number : 80 Question Id : 67809438736 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

N_2 molecule contains

Options :

1. Covalent bond

2. Ionic bond

3. Hydrogen bond

4. Metalic bond

Question Number : 81 Question Id : 67809438737 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

One mole of any of the particles contains

Options :

1. 6.023×10^{-23}

2. 6.022×10^{23}

3. 60.23×10^{23}

4. 6.023×10^{25}

Question Number : 82 Question Id : 67809438738 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. 1N

2. 0.1N

3. 0.5N

4. 0.02N

Question Number : 83 Question Id : 67809438739 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Molecular weight of H_2SO_4 is

Options :

1. 92

2. 96

3. 98

4. 99

Question Number : 84 Question Id : 67809438740 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A Lewis acid is a substance which

Options :

1. Accept protons

2. Accept a lone pair of electrons

3. Donate protons

4. Donate a lone pair of electrons

Question Number : 85 Question Id : 67809438741 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. Basic

2. Acidic

3. Neutral

4. Amphoteric

Question Number : 86 Question Id : 67809438742 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Laws of electrolysis were given by

Options :

1. Ostwald

2. Faraday

3. Arrhenius

4. Volta

Question Number : 87 Question Id : 67809438743 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Common electrolyte used in the salt bridge is

Options :

1. NaOH

2. $NaCO_3$

3. KCl

4. KOH

Question Number : 88 Question Id : 67809438744 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Standard Reduction Potential of an element is equal to

Options :

1. 1 X Its reduction potential

2. -1 X Its standard oxidation potential

3. -1 X Its reduction potential

4. 1 X Its standard oxidation potential

Question Number : 89 Question Id : 67809438745 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The standard emf for the cell reaction, $Zn+Cu^{+2} \rightarrow Cu + Zn^{2+}$ is 1.10 V at

25°C. The emf of the cell reaction when 0.1 M Cu^{+2} and 0.1 M Zn^{+2}

solutions are used at 25°C is

Options :

1. 1.10V

2. 0.11V

3. -1.10V

4. -0.11V

Question Number : 90 Question Id : 67809438746 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which chemical is responsible for permanent hardness of water?

Options :

1. KCl

2. $MgCl_2$

3. NaCl

4. AgCl

Question Number : 91 Question Id : 67809438747 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Permutit is chemically

Options :

1. Sodium Silicate

2. Aluminium Silicate

3. Hydrated Sodium alumino silicate

4. Calicium silicate

Question Number : 92 Question Id : 67809438748 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The cation exchange resin possesses

Options :

1. Acidic group

2. Basic group

3. Amphoteric group

4. Benzo group

Question Number : 93 Question Id : 67809438749 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Chemically the rust is

Options :

1. Fe_2O_3

2. Fe_2O_3. FeO

3. $Fe_2O_3.XH_2O$

4. Fe_2O_3 . NH_3

Question Number : 94 Question Id : 67809438750 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Galvanizing is the process of coating iron with

Options :

1. Mg

2. Cu

3. Au

4. Zn

Question Number : 95 Question Id : 67809438751 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following is not a thermoplastic ?

Options :

1. Bakelite

2. Polystyrene

3. Polythene

4. Nylon

Question Number : 96 Question Id : 67809438752 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Isoprene is a monomer of

Options :

1. Starch

2. Cellulose

3. Natural rubber

4. Lignin

Question Number : 97 Question Id : 67809438753 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Buna-S is a copolymer of

Options :

1. Butadiene and Styrene

2. Butadiene and Acrylonitrile

3. Butadiene and Isoprene

4. Formaldehyde and Styrene

Question Number : 98 Question Id : 67809438754 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Main constituent of natural gas is

Options :

1. Ethane

2. Methane

3. Butane

4. Carbon Monoxide

Question Number : 99 Question Id : 67809438755 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Ozone layer is present at

Options :

1. Staratosphere

2. Inosphere

3. Thermosphere

4. Atmosphere

Question Number : 100 Question Id : 67809438756 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. Biochemical Oxygen Demand

2. Biological Oxygen Demand

3. Chemical Oxygen demand

4. Biomagnification

Electronics and Communication Engineering

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

Question Number : 101 Question Id : 67809438757 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Holes in an n-type semiconductor are

Options :

1. minority carriers that are produced by doping

2. majority carriers that are produced by doping

3. minority carriers that are thermally produced

4. majority carriers that are thermally produced

Question Number : 102 Question Id : 67809438758 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A silicon diode is in series with 1.0 kΩ resistor and a 5 V battery. If the anode is connected to the positive battery terminal, the cathode voltage with respect to the negative battery terminal is

Options :

1. 0.7 V

2. 0.3 V

3. 5.7 V

4. 4.3 V

Question Number : 103 Question Id : 67809438759 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the load resistance of a capacitor-filtered full-wave rectifier is reduced, the ripple voltage

Options :

1. decreases

2. increases

3. remains the same

4. frequency changes

Question Number : 104 Question Id : 67809438760 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For operation as an amplifier, the base of a npn transistor must be

Options :

1. negative with respect to emitter

2. positive with respect to emitter

3. short circuited

4. left floating

Question Number : 105 Question Id : 67809438761 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Ideally, the equivalent circuit of a FET contains

Options :

1. a current source in series with a resistance

2. a current source between gate and source terminals

3. a current source between drain and source terminals

4. a resistance between drain and source terminals

Question Number : 106 Question Id : 67809438762 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When the voltage gain of an amplifier is increased, the bandwidth

Options :

1. Remains the same

2. Increases exponentoially

3. Increases linearly

4. decreases

Question Number : 107 Question Id : 67809438763 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The high-frequency response of an amplifier is determined in part by

Options :

1. The internal transistor capacitances

2. Roll off

3. Gain bandwidth product

4. Bypass capacitances

Question Number : 108 Question Id : 67809438764 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Least distortion in the output of a power amplifier occurs in

Options :

1. Class B Amplifier

2. Class C Amplifier

3. Class AB amplifier

4. Class A amplifier

Question Number : 109 Question Id : 67809438765 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Negative feedback

Options :

1. Increases both input impedance and bandwidth

2. Decreases both input impedance and bandwidth

3. Doesn't affect input impedance and bandwidth

4. Increases both input and output impedances

Question Number : 110 Question Id : 67809438766 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Hall effect is observed in a material when it is carrying a current and placed in a magnetic field. The resultant electric field inside the material is

Options :

1. Parallel to the magnetic field

2. Normal to both the current direction and the magnetic field

3. In the direction of the current

4. In a random direction

Question Number : 111 Question Id : 67809438767 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The operation of a relaxation oscillator is based on

Options :

1. The charging and discharging of a capacitor

2. A stable supply voltage

3. Gradual relaxation of the input

4. Reverse feedback

Question Number : 112 Question Id : 67809438768 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The output voltage of a CB amplifier is

Options :

1. 180° out of the phase with input

2. 90° out of the phase with input

3. same phase as that of the input

4. 270° out of the phase with input

Question Number : 113 Question Id : 67809438769 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A certain inverting amplifier has a closed-loop gain of 25. The op-amp has an open-loop gain of 100,000. If another op-amp with an open loop gain of 200,000 is substituted in the configuration, the closed-loop gain

Options :

1. Doubles to 50

2. Is halved to 12.5

3. Increases by a factor of 100000

4. Remains the same at 25

Question Number : 114 Question Id : 67809438770 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Barkhausen stability criterion are applicable to

Options :

1. linear circuits without feedback

2. linear circuits with feedback

3. non linear circuits

4. unstable circuits

Question Number : 115 Question Id : 67809438771 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following circuits works like a flipflop?

Options :

1. Schmitt Trigger

2. Monostable multivibrator

3. Bistable multivibrator

4. Astable multivibrator

Question Number : 116 Question Id : 67809438772 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A network contains linear resistors and ideal voltage sources. If values of all the resistors are doubled, then voltage across each resistor is

Options :

1. halved

2. remains same

3. doubled

4. quadrupled

Question Number : 117 Question Id : 67809438773 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Twelve 6Ω resistors are used as edges to form a cube. The resistance between two diagonally opposite corners of the cube is

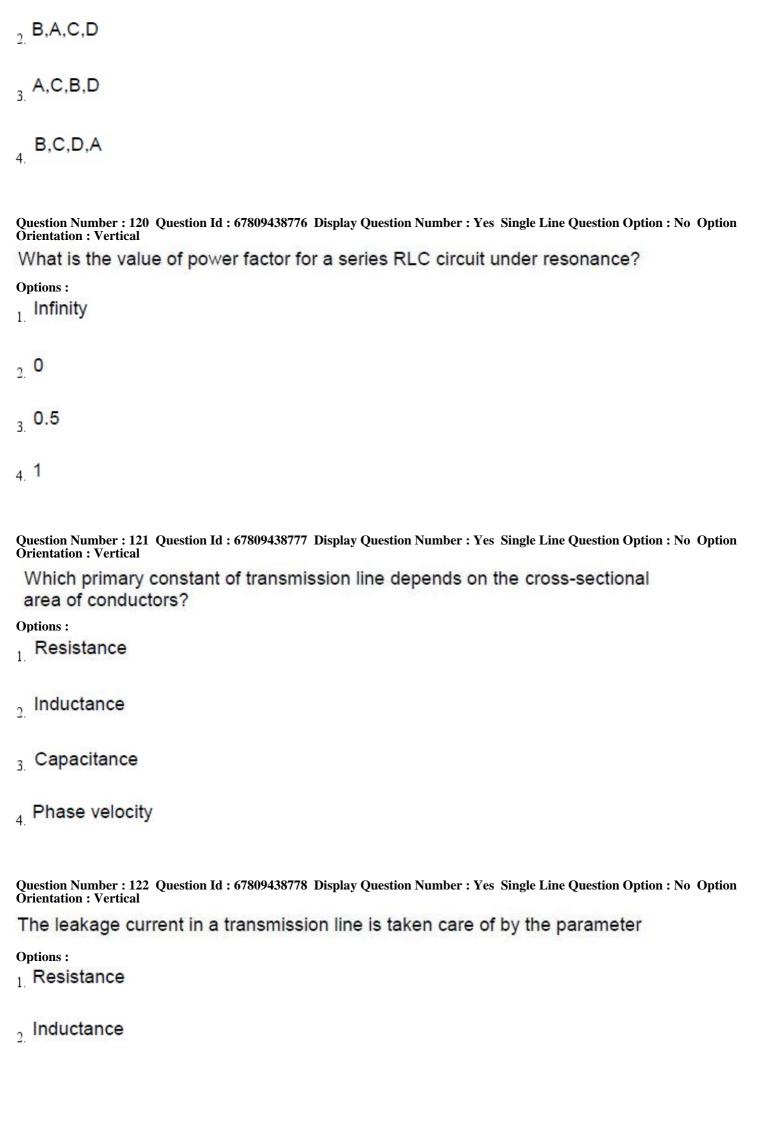Options :

1. 0.5 Ω

2. 0.6 Ω

3. 5 Ω

4. 6 Ω

Question Number : 118 Question Id : 67809438774 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which type of networks allow physical separation of the network elements (resistors, inductors & capacitors) for analysis purpose?

Options :

1. Unilateral networks

2. Bilateral networks

3. Distributed networks

4. Lumped networks

Question Number : 119 Question Id : 67809438775 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which is the correct order of steps to be undertaken while applying Thevenin's theorem?
A. Calculation of Thevenin's equivalent voltage
B. Removal of branch impedance through which required current is to be Estimated
C. Estimation of equivalent impedance between two terminals of the branch
D Estimation of branch current by schematic representation of Thevenin's equivalent circuit

Options :

1. D,A,C,B

2. B,A,C,D

3. A,C,B,D

4. B,C,D,A

Question Number : 120 Question Id : 67809438776 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

What is the value of power factor for a series RLC circuit under resonance?

Options :

1. Infinity

2. 0

3. 0.5

4. 1

Question Number : 121 Question Id : 67809438777 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which primary constant of transmission line depends on the cross-sectional area of conductors?

Options :

1. Resistance

2. Inductance

3. Capacitance

4. Phase velocity

Question Number : 122 Question Id : 67809438778 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The leakage current in a transmission line is taken care of by the parameter

Options :

1. Resistance

2. Inductance

3. Capacitance

4. Conductance

The characteristic impedance of a transmission line with impedance and admittance of 36 and 9 respectively is

Options :

1. 9

2. 18

3. 2

4. 4

Which of the following instruments indicate the instantaneous value of the electrical quantity being measured at the time at which it is being measured ?

Options :

1. Absolute instruments

2. Indicating instruments

3. Integrating instruments

4. Recording instruments

A _____ device prevents the oscillation of the moving system and enables the latter to reach its final position quickly

Options :

1. deflecting

2. controlling

3. damping

4. radiating

Question Number : 126 Question Id : 67809438782 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of these instruments are confined to use within laboratories as standardizing instruments?

Options :

1. Recording instruments

2. Absolute instruments

3. Indicating instruments

4. Integrating instruments

Question Number : 127 Question Id : 67809438783 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following are integrating instruments?

Options :

1. Ampere hour and watt hour meters

2. Ammeters

3. Wattmeters

4. Voltmeters

Question Number : 128 Question Id : 67809438784 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

By using a low resistance shunt, a moving-coil permanent-magnet instrument can be used as

Options :

1. Voltmeter

2. Flux meter

3. Ammeter

4. Wattmeter

Question Number : 129 Question Id : 67809438785 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Damping is provided in the majority of instruments by

Options :

1. Gravity

2. Fluid friction

3. Spring

4. Eddy currents

Question Number : 130 Question Id : 67809438786 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The ratio of maximum displacement deviation to full scale deviation of the instrument is called

Options :

1. linearity

2. accuracy

3. static sensitivity

4. dynamic deviation

Question Number : 131 Question Id : 67809438787 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A potentiometer is a device for

Options :

1. measuring a voltage

2. measuring a current

3. comparing two voltages

4. comparing two currents

Question Number : 132 Question Id : 67809438788 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The Strobosic Principle uses a

Options :

1. Capacitance

2. Flashing Light

3. Resistance

4. Inductance

Question Number : 133 Question Id : 67809438789 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Wavelength range of visible light is

Options :

1. 0.39 – 0.77 mm

2. 0.39 – 0.77 cm

3. 0.39 – 0.77 nm

4. 0.39 – 0.77 µm

Question Number : 134 Question Id : 67809438790 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The number of semiconductor layers in a triac is

Options :

1. 2

2. 3

3. 4

4. 5

Question Number : 135 Question Id : 67809438791 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When a UJT is turned ON, the resistance between emitter terminal and lower base terminal

Options :

1. is decreased

2. is increased

3. remains the same

4. is increased exponentially

Question Number : 136 Question Id : 67809438792 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following is not a characteristic of UJT?

Options :

1. Bilateral conduction

2. Intrinsic standoff ratio

3. Peak point voltage

4. Negative resistance

Question Number : 137 Question Id : 67809438793 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

While working in series operation, equalising circuits are added across each SCR to provide uniform

Options :

1. Current distribution

2. Voltage distribution

3. Firing of SCRs

4. All of the above

Question Number : 138 Question Id : 67809438794 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The di/dt rating of an SCR is specified for its

Options :

1. Decaying gate current

2. Decaying anode current

3. Rising anode current

4. Rising gate current

Question Number : 139 Question Id : 67809438795 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following is a digital transducer?

Options :

1. Strain gauge

2. Thermistor

3. LVDT

4. Encoder

Question Number : 140 Question Id : 67809438796 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following is measured using a piezo electric transducer?

Options :

1. Displacement

2. Force

3. Time

4. Temperature

Question Number : 141 Question Id : 67809438797 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For a Measurement, the measured or indicated value is 125V while the true value is 129V. What is the static error of the instrument?

Options :

1. -4 V

2. 4 V

3. 2 V

4. 8 V

Question Number : 142 Question Id : 67809438798 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a Phototransistor the base current is

Options :

1. set by a bias voltage

2. inversely proportional to light

3. directly proportional to light

4. square to light intensity

Question Number : 143 Question Id : 67809438799 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When can ultrasonic waves be produced using Piezo-electric oscillator?

Options :

1. At constant temperature

2. At constant pressure

3. At constant voltage

4. At resonance

Question Number : 144 Question Id : 67809438800 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Amplitude modulation is defined as the

Options :

1. Change in phase of the carrier in accordance with variations in the modulating signal

2. Change in amplitude of the carrier in accordance with variations in the modulating signal

3. Change in frequency of the modulating signal in accordance with variations in the carrier signal

4. Change in amplitude of the modulating signal in accordance with variations in the carrier signal

Question Number : 145 Question Id : 67809438801 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Calculate the minimum sampling rate needed to avoid aliasing when a continuous time signal given by $x(t) = 3 \cos 200\pi t$ is sampled

Options :

1. 200 Hz

2. 400 Hz

3. 100 Hz

4. 50 Hz

Question Number : 146 Question Id : 67809438802 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Two sinusoidal signals are simultaneously modulating a carrier, the modulation indices being 0.3 and 0.4 respectively. What is the overall modulation index?

Options :

1. 0.1

2. 0.12

3. 0.5

4. 0.7

Question Number : 147 Question Id : 67809438803 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

It is found that the rms antenna current is halved when the modulation index is halved. Choose the type of modulation used

Options :

1. AM

2. SSB-SC

3. SSB with carrier

4. VSB

Question Number : 148 Question Id : 67809438804 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a diode detector circuit, if the AC load is much smaller than the DC load, it may result in

Options :

1. poor receiver sensitivity

2. negative peak clipping

3. diagonal clipping

4. poor AGC

Question Number : 149 Question Id : 67809438805 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Carson's rule is used in the calculation of

Options :

1. Signal to Noise ratio

2. Bandwidth of FM signal

3. Modulation index of AM signal

4. Noise figure of PAM signal

Question Number : 150 Question Id : 67809438806 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

What is the value of carrier frequency in the following equation of a FM signal?

s(t)= 5 cos(660t+ 12sin250t)

Options :

1. 660 Hz

2. 250 Hz

3. 115 Hz

4. 105 Hz

Question Number : 151 Question Id : 67809438807 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A PAM signal can be demodulated using which of the following?

Options :

1. an integrator

2. differentiator

3. Band pass filter

4. an ADC

Question Number : 152 Question Id : 67809438808 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a PCM system, if the number of quantization levels increses from 2 to 8, the required channel bandwidth is

Options :

1. unchanged

2. doubled

3. tripled

4. increased by 4 times

Question Number : 153 Question Id : 67809438809 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a linear system, if an input $x_1(t)$ produces an output $y_1(t)$, and an input $x_2(t)$ produces an output $y_2(t)$, then an input $x_1(t) + x_2(t)$ produces an output $y_1(t) + y_2(t)$. This property of the linear system obeys

Options :

1. orthogonality property

2. principle of superposition

3. similarity property

4. principle of preservation

Question Number : 154 Question Id : 67809438810 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

TDMA allows the users to have

Options :

1. same frequency channel for different time slots

2. same frequency channel for same time slots

3. same time slot for different frequency channel

4. different time slots for different frequency channel

Question Number : 155 Question Id : 67809438811 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Four independent messages have bandwidths of 100Hz, 100 Hz, 200 Hz and 400 Hz respectively. Each is sampled at the Nyquist rate, time division multiplexed and transmitted. The transmitted sample rate, in Hz, is given by

Options :

1. 1600

2. 800

3. 400

4. 200

Question Number : 156 Question Id : 67809438812 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Viterbi decoding is a commonly used technique that is used to decode the data encoded by

Options :

1. CRC technique

2. Block coding

3. Convolutional coding

4. Hamming coding

Question Number : 157 Question Id : 67809438813 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In digital transmission, the modulation technique that requires minimum bandwidth is

Options :

1. Delta modulation

2. PCM

3. DPCM

4. PAM

Question Number : 158 Question Id : 67809438814 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In Differential Pulse Code Modulation technique the decoding is performed by

Options :

1. Sampler

2. Accumulator

3. Quantizer

4. PLL

Question Number : 159 Question Id : 67809438815 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The angular distance between two points on each side of the major lobe of a radiation pattern when the radiation drops to zero is

Options :

1. Side lobe level

2. Half power beam width

3. First null beam width

4. Front to back ratio

Question Number : 160 Question Id : 67809438816 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The pattern which is generated due to plotting of square of amplitude of an electric field is

Options :

1. Power pattern

2. Voltage pattern

3. Field pattern

4. Garden pattern

Question Number : 161 Question Id : 67809438817 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The parabolic reflector antenna converts

Options :

1. Spherical to plane wave

2. Plane to spherical wave

3. Both 'a' and 'b'

4. Neither 'a' nor 'b'

Question Number : 162 Question Id : 67809438818 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

What is the nature of current distribution in small dipoles?

Options :

1. Rectangular

2. Square

3. Spherical

4. Triangular

Question Number : 163 Question Id : 67809438819 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

GSM is an example of

Options :

1. TDMA Cellular System

2. FDMA Cellular System

3. CDMA Cellular System

4. SDMA Cellular System

Radar range primarily depends on

Options :

1. Peak transmitted power

2. Radar resolution

3. Average transmitted power

4. Target height

The Sun blots out the transmission of a geosynchronous satellite twice a year when the satellite passes directly in front of it. This outage lasts for about

Options :

1. One hour on 5 consecutive days

2. 30 minutes on 5 consecutive days

3. 5 minutes on 5 consecutive days

4. 10 minutes on 5 consecutive days

Optical fiber operates on the principle of

Options :

1. Doppler effect

2. Tyndall effect

3. Total internal reflection

4. Photo electric phenomenon

The dominant TE mode in rectangular waveguides is

Options :

1. TE_{01}

2. TE_{11}

3. TE_{10}

4. TE_{20}

Question Number : 168 Question Id : 67809438824 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In Mobile communication systems, the information about mobile users is stored in a number of databases. One of these databases contains data records about mobile stations that can be used to check for stolen mobile stations. This type of database is known as

Options :

1. Equipment identity register

2. Visitor location register

3. Home location register

4. Signaling level register

Question Number : 169 Question Id : 67809438825 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The multiplication of two octal numbers 6_8 and 23_8 is

Options :

1. 200_8

2. 151_8

3. 162_8

4. 140_8

Question Number : 170 Question Id : 67809438826 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The decimal equivalent of Octal number 2322 is

Options :

1. 1234

2. 1024

3. 1324

4. 4321

Question Number : 171 Question Id : 67809438827 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

How many NOR gates are required to implement a two input AND gate?

Options :

1. 2

2. 3

3. 4

4. 5

Question Number : 172 Question Id : 67809438828 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following logic families has the simplest internal structure?

Options :

1. CMOS

2. ECL

3. RTL

4. TTL

Question Number : 173 Question Id : 67809438829 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The output frequency of a decade counter which is clocked from a 50 KHz signal is

Options :

1. 500 KHz

2. 250 KHz

3. 60 KHz

4. 5 KHz

Question Number : 174 Question Id : 67809438830 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For a given Mod number, the counter which requires maximum number of flip- flops is

Options :

1. Ring counter

2. Ripple counter

3. BCD counter

4. Programmable counter

Question Number : 175 Question Id : 67809438831 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If a logic circuit has a fan out of 4, then the circuit

Options :

1. has 4 outputs

2. has 4 inputs

3. gives output which is 4 times the input

4. can drive a maximum of 4 inputs

Question Number : 176 Question Id : 67809438832 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Subtraction of $(1010)_2$ from $(0011)_2$ using 2's complement gives

Options :

1. $(0111)_2$

2. $-(0111)_2$

3. $-(1001)_2$

4. $(1001)_2$

Question Number : 177 Question Id : 67809438833 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The number of minterms in the expression A + BC are

Options :

1. 2

2. 3

3. 5

4. 7

Question Number : 178 Question Id : 67809438834 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A PROM can be programmed only once. After programming, its contents

Options :

1. Are permanently fixed

2. Are temporarily fixed

3. can be erased only once

4. can be changed a fixed number of times

Question Number : 179 Question Id : 67809438835 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following instructions usually affect the program counter?

Options :

1. Return and Jump

2. Call and Jump

3. Call and Return

4. Push and Pop

Question Number : 180 Question Id : 67809438836 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

What is the baud rate required for efficient operation of serial port devices in 805 microcontrollers?

Options :

1. 1200

2. 2400

3. 4800

4. 9600

Question Number : 181 Question Id : 67809438837 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the below registers doesn't belong to the category of special function registers?

Options :

1. TCON & TMOD

2. TH0 &TL0

3. SP & PC

4. P0 & P1

Question Number : 182 Question Id : 67809438838 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which among the below flags represent the least significant bit (LSB) and most significant bit (MSB) of Program Status Word (PSW) respectively?

Options :

1. Parity flag and Carry flag

2. Parity Flag & Auxiliary Carry Flag

3. Carry Flag & Overflow Flag

4. Carry Flag & Auxiliary Carry Flag

Question Number : 183 Question Id : 67809438839 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which bit must be set in TCON register to start the 'Timer 0' while operating in 'Mode 0'?

Options :

1. TF0

2. TR0

3. IE0

4. IT0

Question Number : 184 Question Id : 67809438840 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

What does the symbol '#' represent in the instruction MOV A, #24H?

Options :

1. Indexed datatype

2. Direct datatype

3. Immediate datatype

4. Indirect datatype

Question Number : 185 Question Id : 67809438841 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of these instructions complements the accumulator without affecting any of the flags?

Options :

1. CLR

2. SETB

3. IPL

4. CPL

Question Number : 186 Question Id : 67809438842 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The microprocessor enters the single step execution mode if the following flag is set

Options :

1. TRAP

2. Interrupt

3. Zero

4. Carry

Question Number : 187 Question Id : 67809438843 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the segment address is 1005 H and offset address is 4555 H, then the physical address is given by

Options :

1. 555A H

2. 145A5 H

3. 3550 H

4. 55555 H

Question Number : 188 Question Id : 67809438844 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In 8086, the following interrupt has the highest priority

Options :

1. DIV 0

2. TYPE 255

3. NMI

4. OVERFLOW

Question Number : 189 Question Id : 67809438845 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The length of the sweep screen in a television is controlled by

Options :

1. Horizontal gain

2. Vertical gain

3. Sweep selector

4. Sync control

Question Number : 190 Question Id : 67809438846 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a TV receiver set, sound and video signals are separated at the

Options :

1. Video amplifier

2. Video detector

3. IF Stage

4. Sync separator

Question Number : 191 Question Id : 67809438847 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a TV receiver set, if both the sound and picture are weak and distorted, the problem is most likely in the

Options :

1. AFC

2. Video amplifier

3. AM detector

4. Tuner

Question Number : 192 Question Id : 67809438848 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In colour TV receivers, ATC stands for

Options :

1. Automatic tuner control

2. Automatic television control

3. Automatic tint control

4. Automatic tone control

Question Number : 193 Question Id : 67809438849 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Interlacing is used in TV frames to

Options :

1. avoid humming

2. avoid flicker

3. produce illusion of motion

4. ensure scanning of all lines

Question Number : 194 Question Id : 67809438850 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Physical or logical arrangement of a network is called

Options :

1. Routing

2. Topology

3. Methodology

4. Networking

Question Number : 195 Question Id : 67809438851 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A data communication system within a building or a campus is called

Options :

1. BAN

2. MAN

3. LAN

4. WAN

Question Number : 196 Question Id : 67809438852 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The number of layers in OSI reference model is

Options :

1. 5

2. 6

3. 7

4. 8

Question Number : 197 Question Id : 67809438853 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following layers of the OSI model is also called end-to-end layer?

Options :

1. Transport layer

2. Network layer

3. Session layer

4. Presentation layer

Question Number : 198 Question Id : 67809438854 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The Internet is an example of

Options :

1. Cell switched network

2. Circuit switched network

3. Station switched network

4. Packet switched network

Question Number : 199 Question Id : 67809438855 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A list of protocols used by a system, one protocol per layer, is called

Options :

1. protocol list

2. protocol architecture

3. protocol suit

4. protocol stack

HTTP belongs to which of the following layers?

Options :

1. Application layer

2. Transport layer

3. Network layer

4. Physical layer