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| **Question Paper Name:** | Electronics and Communication Engineering |
| **Subject Name:** | Electronics and Communication Engineering |
| | Mathematics |
| Number of Questions: | 50 |
| Display Number Panel: | Yes |
| Group All Questions: | No |

**Question Number : 1  Question Id : 6780945204  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

If the traces of A and B are 20 and -8 then the trace of (A+B) is ___

**Options :**

1. 12

2. -12

3. 28

4. -28

**Question Number : 2  Question Id : 6780945205  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

If $A = \begin{bmatrix} x & 1 \\ 1 & 0 \end{bmatrix}$ is an involutory matrix then $x =$

**Options :**

1. 0

2. $-2$

3. $-1$

4. 2

**Question Number : 3  Question Id : 6780945206  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The determinant of $\begin{bmatrix} \log e & \log e^2 & \log e^3 \\ \log e^2 & \log e^3 & \log e^4 \\ \log e^3 & \log e^4 & \log e^5 \end{bmatrix}$ is ___

**Options :**

1. $0$

2. $1$

3. $4\log e$

4. $5\log e$

**Question Number : 4  Question Id : 6780945207  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

If $A = \begin{bmatrix} 1 & 1 & 0 \\ 2 & 1 & 3 \\ 0 & 1 & 2 \end{bmatrix}$ then $\det(adjA) = $ ___

**Options :**

1. $\det A$

2. $\det A^2$

3. $-\det A$

4. $(\det A)^2$

**Question Number : 5  Question Id : 6780945208  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

If $A$, $B$ are two matrices and $AB=B$, $BA=A$ then $A^2 + B^2 = $

**Options :**

1. $A+B$

2. $A-B$

3. $AB$

4. $0$

**Question Number : 6  Question Id : 6780945209  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

If $\dfrac{3x+2}{(x+1)(2x^2+3)} = \dfrac{A}{x+1} + \dfrac{Bx+C}{2x^2+3}$, then $A+C-B = $ _____

**Options :**

1. 0

2. 2

3. 3

4. 5

**Question Number : 7 Question Id : 6780945210 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

If $\dfrac{3x}{(x-a)(x-b)} = \dfrac{2}{x-a} + \dfrac{1}{x-b}$ then $a:b = $ _____

**Options :**

1. $-2:1$

2. $2:1$

3. $1:2$

4. $3:1$

**Question Number : 8 Question Id : 6780945211 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

The value of $\tan 855° = $ _____

**Options :**

1. $1$

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

3. $-1$

4. $-\dfrac{1}{\sqrt{2}}$

**Question Number : 9 Question Id : 6780945212 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

If $\tan\alpha = \dfrac{m}{m+1}$ and $\tan\beta = \dfrac{1}{2m+1}$ then $\tan(\alpha+\beta) = $ _____

**Options :**

1. $-1$

2. $0$

3. $1$

4. $2$

**Question Number : 10  Question Id : 6780945213  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The value of $6\sin 20° - 8\sin^3 20° =$

**Options :**

1. $2$

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

3. $\sqrt{3}$

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

**Question Number : 11  Question Id : 6780945214  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

If $3\sin\theta + 4\cos\theta = 5$ then the value of $4\sin\theta - 3\cos\theta =$

**Options :**

1. $0$

2. $-1$

3. $1$

4. $2$

**Question Number : 12  Question Id : 6780945215  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The sine function with period 3 is

**Options :**

1. $\sin\dfrac{2\pi x}{3}$

2. $\sin\dfrac{\pi x}{3}$

3. $\sin 3\pi x$

4. $\sin \dfrac{3\pi x}{2}$

**Question Number : 13  Question Id : 6780945216  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The maximum value of $3\sin^2 x + 5\cos^2 x$ is ____

**Options :**

1. 8

2. 3

3. 5

4. 34

**Question Number : 14  Question Id : 6780945217  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The equation $\sqrt{3}\sin x + \cos x = 4$ has ____

**Options :**

1. Only one solution

2. two solutions

3. Infinite solutions

4. no solution

**Question Number : 15  Question Id : 6780945218  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The solution of $\cos^{-1}\left(\sqrt{3}x\right) + \cos^{-1} x = \dfrac{\pi}{2}$ is ___

**Options :**

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

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

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

4. $-\dfrac{1}{5}$

The value of $\sin\theta + \sin(\theta + 120°) - \sin(120° - \theta) = $ _____

**Options :**

1. $0$

2. $\sin\theta$

3. $1$

4. $-\sin\theta$

The principal solution of $3\,CosecA = 4\,SinA$ is _____

**Options :**

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

2. $\pm\dfrac{\pi}{3}$

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

4. $\pm 2\pi$

If $\left|z^2 - 1\right| = |z|^2 + 1$. then $z$ lies in _____

**Options :**

1. The real axis

2. a circle

3. The imaginary axis

4. a parabola

**Question Number : 19   Question Id : 6780945222   Display Question Number : Yes   Single Line Question Option : No   Option Orientation : Vertical**

If $\left(\dfrac{1+i}{1-i}\right)^3 - \left(\dfrac{1-i}{1+i}\right)^3 = a + ib$, then $a$ an $b$ are ____

**Options :**

1. 1,1

2. 2,-2

3. 0,-2

4. 0,-1

**Question Number : 20   Question Id : 6780945223   Display Question Number : Yes   Single Line Question Option : No   Option Orientation : Vertical**

If the line $y = 2x + c$ is a tangent to $x^2 + y^2 = 5$ then the value of $c$ is ____

**Options :**

1. 2

2. 3

3. 4

4. 5

**Question Number : 21   Question Id : 6780945224   Display Question Number : Yes   Single Line Question Option : No   Option Orientation : Vertical**

The vertex of the parabola $x^2 + 8x + 12y + 4 = 0$ is

**Options :**

1. $(-4, 1)$

2. $(4, -1)$

3. $(-4, -1)$

4. $(4, 1)$

**Question Number : 22   Question Id : 6780945225   Display Question Number : Yes   Single Line Question Option : No   Option Orientation : Vertical**

The number of tangents to the ellipse $\dfrac{x^2}{4} + \dfrac{y^2}{2} = 1$ through $(2,1)$ is ____

**Options :**

1. 0

2. 1

3. 2

4. 3

The length of the latus rectum of the hyperbola $x^2 - 4y^2 = 4$ is _____

**Options :**

1. 2

2. 1

3. 4

4. 3

The length of the diameter of the circle $x^2 + y^2 - 6x - 8y = 0$ is _____

**Options :**

1. 10

2. 15

3. 5

4. 20

If the line $2y = 5x + k$ touches the parabola $y^2 = 6x$ then $k =$ ___

**Options :**

1. $\dfrac{2}{3}$

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

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

4. $\dfrac{6}{5}$

**Question Number : 26  Question Id : 6780945229  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

$$\lim_{x \to 2+} \frac{x|x-2|}{x-2} = \underline{\hspace{2cm}}$$

**Options :**

1. 1

2. −1

3. 2

4. −2

**Question Number : 27  Question Id : 6780945230  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

If $f(x) = (1+x)^{\frac{2}{x}}$ is continuous at $x=0$ then $f(0) = \underline{\hspace{1cm}}$

**Options :**

1. $e$

2. $e^2$

3. $e^3$

4. $e^4$

**Question Number : 28  Question Id : 6780945231  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

If $x = a\sec\theta, y = b\tan\theta$ then $\frac{dy}{dx} = \underline{\hspace{1cm}}$

**Options :**

1. $\frac{b}{a}\sec\theta$

2. $\frac{b}{a}\operatorname{cosec}\theta$

3. $\frac{a}{b}\sec\theta$

4. $\frac{a}{b}\operatorname{cosec}\theta$

**Question Number : 29  Question Id : 6780945232  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

If $x^y = e^{x-y}$ then $\dfrac{dy}{dx} =$ _____

**Options :**

1. $\dfrac{\log x}{(1+\log x)^2}$

2. $\dfrac{\log x}{(1-\log x)^2}$

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

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

**Question Number : 30  Question Id : 6780945233  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

If $y = \sin^{-1}\left(\dfrac{x}{\sqrt{1+x^2}}\right)$ then $\dfrac{dy}{dx} =$ _____

**Options :**

1. $-\dfrac{1}{1+x^2}$

2. $\dfrac{1}{1+x^2}$

3. $\dfrac{2}{1+x^2}$

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

**Question Number : 31  Question Id : 6780945234  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The slope of the normal to the curve $x = a\sec\theta, y = a\tan\theta$ at $\theta = \dfrac{\pi}{6}$ is _____

**Options :**

1. 2

2. 0

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

4. 1

**Question Number : 32  Question Id : 6780945235  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The rate of change of area of a circle with respect to radius when *r*=5cm is

**Options :**

1. $2\pi$ sq.cm/sec

2. $10\pi$ sq.cm/sec

3. $100\pi$ sq.cm/sec

4. $20\pi$ sq.cm/sec

**Question Number : 33  Question Id : 6780945236  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

Which of the following function has maxima or minima?

**Options :**

1. $e^x$

2. $\log x$

3. $x^3 + x^2 + x + 1$

4. $\sin x$

**Question Number : 34  Question Id : 6780945237  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

If the increase in the side of a square is 2% then the approximate percentage increase in the area of the square is _____

**Options :**

1. 2

2. 4

3. 6

4. 8

For the function $f(x) = \log(x^2 + y^2)$, which of the following is true?

**Options :**

1. $f_x + f_y = 0$

2. $f_{xx} + f_{yy} = 0$

3. $f_x - f_y = 0$

4. $f_{xx} - f_{yy} = 0$

$\int \csc^5 \theta \cot \theta \, d\theta = \underline{\hspace{1cm}}$

**Options :**

1. $\dfrac{\cot^2 \theta}{2}$

2. $\dfrac{-\csc^5 \theta}{5}$

3. $\dfrac{\csc^6 \theta}{6}$

4. $\dfrac{-\csc^6 \theta}{6}$

$\int_{2}^{3} \dfrac{dx}{x^2 - x} = \underline{\hspace{1cm}}$

**Options :**

1. $\log \dfrac{2}{3}$

2. $\log \dfrac{4}{3}$

$\log \dfrac{8}{3}$

3.

$\log \dfrac{1}{4}$

4.

**Question Number : 38  Question Id : 6780945241  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

If $a < 0 < b$ then $\displaystyle\int_a^b \dfrac{|x|}{x}\,dx = \underline{\hspace{1cm}}$

**Options :**

1. $b - a$

2. $a - b$

3. $a + b$

4. $0$

**Question Number : 39  Question Id : 6780945242  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

$\displaystyle\int_0^1 x\tan^{-1}x\,dx = \underline{\hspace{1cm}}$

**Options :**

1. $\dfrac{\pi}{4} - \dfrac{1}{2}$

2. $\dfrac{\pi}{8} - \dfrac{1}{2}$

3. $\dfrac{\pi}{4} + \dfrac{1}{2}$

4. $\dfrac{\pi}{8} + \dfrac{1}{2}$

**Question Number : 40  Question Id : 6780945243  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

$\displaystyle\lim_{n\to\infty} \sum_{r=1}^{n} \dfrac{1}{n} e^{\frac{r}{n}} = \underline{\hspace{1cm}}$

**Options :**

1. $e$

2. $(1+e)$

3. $(1-e)$

4. $(e-1)$

**Question Number : 41  Question Id : 6780945244  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

$$\int_0^{\pi/4} \sec^6 x \, dx = \underline{\qquad}$$

**Options :**

1. $\dfrac{8}{3}$

2. $\dfrac{28}{15}$

3. $-\dfrac{28}{15}$

4. $\dfrac{4}{5}$

**Question Number : 42  Question Id : 6780945245  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The area bounded by the curve $y = \log x$. x-axis and the straight line $x - e = 0$ is _____square units

**Options :**

1. $e$

2. $(e-1)$

3. $0$

4. $(1-e)$

**Question Number : 43  Question Id : 6780945246  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The volume of the solid generated by rotating one arch of the curve $y = Sin3x$ about the x-axis is----

**Options :**

1. $\pi^2$

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

3. $\dfrac{\pi^2}{4}$

4. $\dfrac{\pi^2}{6}$

**Question Number : 44  Question Id : 6780945247  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

$y = cx - c^2$ is the general solution of the differential equation

**Options :**

1. $\left(\dfrac{dy}{dx}\right)^2 - x\left(\dfrac{dy}{dx}\right) + y = 0$

2. $\dfrac{d^2y}{dx^2} = 0$

3. $\dfrac{dy}{dx} = c$

4. $\left(\dfrac{dy}{dx}\right)^2 + x\left(\dfrac{dy}{dx}\right) + y = 0$

**Question Number : 45  Question Id : 6780945248  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The general solution of the differential equation $\dfrac{dy}{dx} + \dfrac{y}{3} = 1$ is

**Options :**

1. $y = 3 + ce^{\frac{x}{3}}$

2. $y = 3 + ce^{-\frac{x}{3}}$

3. $3y = c + e^{\frac{x}{3}}$

$$4. \quad 3y = c + e^{-\frac{x}{3}}$$

**Question Number : 46  Question Id : 6780945249  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The differential equation corresponding to the family of curves $y = ae^{bx}$, where $a$ and $b$ are arbitrary constants, is ____

**Options :**

1. $\dfrac{d^2y}{dx^2} = y\dfrac{dy}{dx}$

2. $y\dfrac{d^2y}{dx^2} - \dfrac{dy}{dx} = 0$

3. $y\dfrac{d^2y}{dx^2} = \left(\dfrac{dy}{dx}\right)^2$

4. $\dfrac{dy}{dx} - y^2 = 0$

**Question Number : 47  Question Id : 6780945250  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

An integrating factor of the differential equation
$(x^2y + y + 1)dx + (x + x^3)dy = 0$ is ___

**Options :**

1. $e^x$

2. $x^2$

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

4. $x$

**Question Number : 48  Question Id : 6780945251  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The differential equation whose solution is $Ax^2 + By^2$, where A,B are arbitrary constants are of  ----

**Options :**

1. $1^{st}$ order and $1^{st}$ degree

2. $2^{nd}$ order and $1^{st}$ degree

3. $2^{nd}$ order and $2^{nd}$ degree

4. $1^{st}$ order and $2^{nd}$ degree

**Question Number : 49 Question Id : 6780945252 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

The general solution of the differential equation $\dfrac{d^2x}{dt^2} - 4\dfrac{dx}{dt} + 5x = 0$ is

**Options :**

1. $x = (c_1 \cos t + c_2 \sin t)e^{2t}$

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

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

4. $t = (c_1 \cos 2x + c_2 \sin 2x)e^{x}$

**Question Number : 50 Question Id : 6780945253 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

The particular integral of $(D-2)^2 y = \sin 2x$ is

**Options :**

1. $\dfrac{\cos 2x}{8}$

2. $\dfrac{\sin 2x}{8}$

3. $\dfrac{-\cos 2x}{2}$

4. $\dfrac{-\sin 2x}{2}$

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

The unit of impulse is the same as that of

**Options :**

1. moment of force

2. linear momentum

3. force

4. pressure

If the force is given by $F = at + bt^2$ where t is the time. The dimensions of a and b are

**Options :**

1. $MLT^{-4}, MLT^{-2}$

2. $MLT^{-3}, MLT^{-4}$

3. $ML^2T^{-3}, ML^2T^{-2}$

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

Vector parallel to $6\hat{\imath} + 8\hat{\jmath}$  and having a magnitude of 5 is

**Options :**

1. $4\hat{\imath} + 3\hat{\jmath}$

2. $12\hat{\imath} + 16\hat{\jmath}$

3. $16\hat{\imath} + 8\hat{\jmath}$

4. $3\hat{\imath} + 4\hat{\jmath}$

If $|\vec{A} \times \vec{B}| = K(AB)$ then angle between $\vec{A}$  and $\vec{B}$ is

**Options :**

1. $\cos^{-1}K$

2. $\cos^{-1}(1/K)$

3. $\sin^{-1}K$

4. $\sin^{-1}(1/K)$

**Question Number : 55 Question Id : 6780945258 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

A cricket ball is thrown at a speed of 28 m/s in a direction 30⁰ above the horizontal. The maximum height reached by the ball is

**Options :**

1. 10 m

2. 20 m

3. 30 m

4. 40 m

**Question Number : 56 Question Id : 6780945259 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

Two bodies are projected at angles of 45⁰ and 60⁰ with the horizontal with same velocity simultaneously. Ratio of their horizontal ranges is

**Options :**

1. $\sqrt{3} : 2$

2. $2 : \sqrt{3}$

3. 1:2

4. 2:1

**Question Number : 57 Question Id : 6780945260 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

A ball thrown by a boy is caught 2 seconds later by another at some distance away on the same level. If the angle of projection is 30⁰, the velocity of projection is

**Options :**

1. 19.6 m/sec

2. 9.8 m/sec

3. 4.9 m/sec

4. 5.2 m/sec

**Question Number : 58  Question Id : 6780945261  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

A 200 m wide river flows with a velocity of 5 m/sec. A man crosses the river in the shortest time of 25 sec. If there is no flow and he swims with the same velocity, the time taken to cross the river is

**Options :**

1. $\dfrac{200}{5\sqrt{3}}$ sec

2. 20 sec

3. 25 sec

4. $25\sqrt{2}$ sec

**Question Number : 59  Question Id : 6780945262  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

A body of mass 1 Kg lies on an inclined plane of angle $60^0$ to the horizontal. If the coefficient of friction is 0.4, the frictional force along the inclined plane is

**Options :**

1. 1.96 N

2. 0.98 N

3. 0.49 N

4. 0.245 N

**Question Number : 60  Question Id : 6780945263  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

A force of 20 Kg weight is required to just slide a wooden box weighing 50 Kg over ice. Then coefficient of static friction between the surfaces in contact is

**Options :**

1. 0.2

2.  0.4

3.  0.8

4.  0.1

**Question Number : 61  Question Id : 6780945264  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

A cyclist comes to a skidding stop in 10m. During this process, the force on the cycle due to the road is 200N and is directly opposed to the motion. The work done by the road on the cycle is

**Options :**

1.  1000 J

2.  2000J

3.  -1000J

4.  -2000J

**Question Number : 62  Question Id : 6780945265  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

A sphere of mass 4 Kg is dropped from a certain height. After 5s, its kinetic energy is     $(g=10 \text{ m/s}^2)$

**Options :**

1.  5J

2.  50 J

3.  5 KJ

4.  50 KJ

**Question Number : 63  Question Id : 6780945266  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

An elevator weighing 500 kg is to be lifted up at a constant velocity of 0.20 m/s. What would be the minimum power of the motor to be used?

**Options :**

1.  100 W

2.  500 W

3. 980 W

4. 900 W

**Question Number : 64  Question Id : 6780945267  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

At t=0, the displacement of a particle in SHM is half its amplitude. Its initial phase is   (referring to mean position)

**Options :**

1. $\dfrac{\pi}{6}$

2. $\dfrac{\pi}{3}$

3. $\dfrac{2\pi}{3}$

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

**Question Number : 65  Question Id : 6780945268  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The length of seconds pendulum is 100 cm. To have a period half of this value, the length is to be reduced by

**Options :**

1. 25 cm

2. 75 cm

3. 50 cm

4. 100 cm

**Question Number : 66  Question Id : 6780945269  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

Inside a big hall, the reverberation time is

**Options :**

1. directly proportional to volume

2. inversely proportional to sound absorption

both directly proportional to volume

and

inversely proportional to sound absorption

3.

4. depends on temperature

**Question Number : 67 Question Id : 6780945270 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

The voice of lion is different from that of a mosquito because

**Options :**

1. the sounds have different pitch

2. they are of different size

3. the two voices travel with different velocities

4. the sounds have different phases

**Question Number : 68 Question Id : 6780945271 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

A car is travelling at $\frac{v}{10}$ m/s and sounds horn of frequency 990 Hz. The

apparent frequency heard by a police chasing the car at $\frac{v}{9}$ m/s (v is the velocity

of sound) is

**Options :**

1. 990 Hz

2. 900 Hz

3. 100 Hz

4. 1000Hz

**Question Number : 69 Question Id : 6780945272 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

When ice cube melts and becomes water, the ice-water system undergoes a

change such that

**Options :**

1. entropy of the system decreases and internal energy decreases

2. entropy of the system decreases and internal energy increases

3. entropy of the system increases and internal energy increases

4. entropy of the system increases and internal energy decreases

**Question Number : 70  Question Id : 6780945273  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

A mass of 300 gm falls from a height of 3 m($g=9.8$ m/s$^2$). Assuming that the whole energy is converted into heat, the amount of heat produced is

Options :

1. 2 cal

2. 2.1 cal

3. 4 cal

4. 4.2 cal

**Question Number : 71  Question Id : 6780945274  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

During an adiabatic expansion of 2 moles of a gas, the change in internal energy was found to be equal to 100 J. The work done during the process will be equal to

Options :

1. zero

2. -100 J

3. 200 J

4. 100 J

**Question Number : 72  Question Id : 6780945275  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The pressure and density of a diatomic gas ($\gamma = \frac{7}{5}$) change adiabatically from (P,d) to (P$^1$,d$^1$).  If $\frac{d^1}{d} = 32$, then $\frac{P^1}{P}$ is

Options :

1. 128

2. 32

3. 256

4. 64

**Question Number : 73  Question Id : 6780945276  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

Boyle's law holds good for an ideal gas during

**Options :**

1. isobaric changes

2. isothermal changes

3. isochoric changes

4. isotopic changes

**Question Number : 74  Question Id : 6780945277  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The threshold frequency of metal is $v_0$. When a light of frequency $4 v_0$ is incident on metal   then the $K.E_{max}$ of emitted electrons is

**Options :**

1. $2 v_0 h$

2. $3 v_0 h$

3. $4 v_0 h$

4. $v_0 h$

**Question Number : 75  Question Id : 6780945278  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

Superconductors are _____ materials

**Options :**

1. dielectric

2. paramagnetic

3. ferromagnetic

4. diamagnetic

Chemistry

**Question Number : 76  Question Id : 6780945279  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The Pauli exclusion principle is concerned with

**Options :**

1. Energy of orbital.

2. Spin of electron.

3. Energy of electron

4. Angular momentum of electron

**Question Number : 77  Question Id : 6780945280  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

According to Bohr's model of hydrogen atom, the following is quantized

**Options :**

1. Linear momentum

2. Linear velocity

3. Angular momentum

4. Angular velocity

**Question Number : 78  Question Id : 6780945281  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

How many 'd' – orbitals  have two perpendicular nodal planes

**Options :**

1. Two

2. Three

3. Four

4. Five

**Question Number : 79  Question Id : 6780945282  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

In sodium chloride crystal, each $Na^+$ ion is surrounded by

**Options :**

1. Two $Cl^-$ ions

2. Four $Cl^-$ ions

3. Six $Cl^-$ ions

4. Eight $Cl^-$ ions

**Question Number : 80  Question Id : 6780945283  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

Which among the following molecule contains a $\pi$ – bond

**Options :**

1. $H_2$

2. $O_2$

3. $F_2$

4. HCl

**Question Number : 81  Question Id : 6780945284  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

Which among the following is insoluble in water?

**Options :**

1. Alcohol

2. Ammonia

3. Benzene

4. Acetone

**Question Number : 82  Question Id : 6780945285  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The normality of 2.3 M $H_2SO_4$ solution is

**Options :**

1. 0.46N

2. 0.23 N

3. 2.3 N

4. 4.6N

8 grams of substance of molecular weight 40 is dissolved in 250 g of water. Then the **molality** of the solution is

**Options :**

1. 0.4

2. 0.8

3. 0.2

4. 0.6

The pH value of 0.05M $Ba(OH)_2$ solution is

**Options :**

1. 10

2. 12

3. 13

4. 11

Which of the following molecule is not a Lewis Base?

**Options :**

1. $H_2O$

2. $BF_3$

3. $NH_3$

4. CO

During the electrolysis of brine, 710 g of $Cl_2$ was liberated at anode. The weight of NaOH formed

**Options :**

1. 800 g

2. 400 g

3. 80 g

4. 40 g

**Question Number : 87  Question Id : 6780945290  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

In the Danniel cell, which electrode acts as anode?

**Options :**

1. Cu

2. Hg

3. Zn

4. Pt

**Question Number : 88  Question Id : 6780945291  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The molar conductance of HCl is more than that of NaCl because

**Options :**

1. NaCl is more polar than KCl

2. NaCl is ionic while HCl is covalent

3. Ionic mobility of $H^+$ is more than that of $Na^+$

4. $H^+$ get hydrated.

**Question Number : 89  Question Id : 6780945292  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The units for electrochemical equivalent are

**Options :**

1. grams

2. grams ampere

3. Coulomb

4. Grams per coulomb

**Question Number : 90  Question Id : 6780945293  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

Zeolite softening process removes

**Options :**

1. Only permanent hardness of water

2. Only temporary hardness of water

3. Both temporary and permanent hardness of water

4. The dissolved gases in permanent hard water.

**Question Number : 91 Question Id : 6780945294 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

The permanent hardness of water is caused by the presence of

**Options :**

1. Bicarbonates of Ca and Mg

2. Carbonates of Na and K

3. Chlorides and Sulphates of Ca and Mg.

4. Phosphates of Na and K

**Question Number : 92 Question Id : 6780945295 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

The secondary treatment of water uses _____ to consume wastes in water.

**Options :**

1. Filtration

2. Sedimentation

3. Chemicals

4. Microorganisms

**Question Number : 93 Question Id : 6780945296 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

Difficult to monitor and very dangerous form of corrosion is

**Options :**

1. Galvanic

2. Pitting

3. Crevice

4. Stress

**Question Number : 94  Question Id : 6780945297  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

When Pt and Co are electrically connected, which one gets corroded?

**Options :**

1. Co

2. Pt

3. None

4. both

**Question Number : 95  Question Id : 6780945298  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

What rubber was invented when Dr. Joseph C. Patrick tried to make antifreeze?

**Options :**

1. Methyl rubber

2. Chloroprene

3. Bruna N

4. Thiokol

**Question Number : 96  Question Id : 6780945299  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The first plastic ever synthesized was called _____.

**Options :**

1. Bakelite

2. Nylon

3. Dacron

4. Cellulose

**Question Number : 97  Question Id : 6780945300  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

_____ is a brand of polyester textile fiber that is wrinkle resistant and strong

**Options :**

1. Cellulose

2. Dacron

3. Bakelite

4. Nylon

**Question Number : 98  Question Id : 6780945301  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

Water gas is a mixture of

**Options :**

1. $H_2 + CO$

2. $N_2 + CO$

3. $H_2 + CO_2$

4. $H_2 + CH_4$

**Question Number : 99  Question Id : 6780945302  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

Which of the following is not a greenhouse gas?

**Options :**

1. CO

2. $CO_2$

3. water vapour

4. $CH_4$

**Question Number : 100  Question Id : 6780945303  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

Burning of fossil fuels causes

**Options :**

1. Global warming

2. Ozone depletion

3. Acid rain

4. Eutrophication

**Question Number : 101  Question Id : 6780945304  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

A high resistance reading in both forward bias and reverse bias directions indicate

that the diode is

**Options :**

1. An open diode

2. A shorted diode

3. A good diode

4. A defective ohmmeter

**Question Number : 102  Question Id : 6780945305  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

Which capacitance dominates in forward bias

**Options :**

1. Depletion

2. Transition

3. Diffusion

4. Conversion

**Question Number : 103  Question Id : 6780945306  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

A type of diode typically used for tuning circuit applications is

**Options :**

1. Gunn diode

2. Varactor diode

3. Schottky diode

4. LED

**Question Number : 104  Question Id : 6780945307  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

FET is _____ device and BJT is _____ device

**Options :**

1. Voltage controlled, Current controlled

2. Current controlled, Voltage controlled

3. Voltage controlled, Voltage controlled

4. Current controlled, Current controlled

**Question Number : 105  Question Id : 6780945308  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

What is the percentage of regulation if $V_{NL}$ = 20V and $V_{FL}$= 19.8 V?

**Options :**

1. 0 %

2. 1 %

3. 0.1 %

4. 0.5 %

**Question Number : 106  Question Id : 6780945309  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

Negative resistance characteristics in Unipolar Junction Transistor  occurs.

**Options :**

1. Between Peak and Valley currents

2. At peak current

3. At valley current

4. In saturation region

**Question Number : 107  Question Id : 6780945310  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

Transformer Utilization Factor of Bridge rectifier is

**Options :**

1. 0.287

2. 0.812

3. 0.984

4. 0.693

**Question Number : 108  Question Id : 6780945311  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

Voltage buffer is the application of

**Options :**

1. Common Emitter amplifier

2. Emitter follower

3. Common Base amplifier

4. Common Drain amplifier

**Question Number : 109  Question Id : 6780945312  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

Which of the following coupling provides high power amplification

**Options :**

1. Direct coupling

2. RC coupling

3. Transformer coupling

4. Impedance coupling

**Question Number : 110  Question Id : 6780945313  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The type of power amplifier which exhibits crossover distortion in its output is

**Options :**

1. Class A

2. Class AB

3. Class B

4. Class C

**Question Number : 111  Question Id : 6780945314  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

Input impedance of an ideal operational amplifier is.

**Options :**

1. Zero

2. 100 Ω

3. 1 M Ω

4. Infinite

**Question Number : 112  Question Id : 6780945315  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

In operational amplifiers, the voltage required to make the output zero for no

signal condition is known as,

**Options :**

1. Slew rate

2. Bias voltage

3. Input offset voltage

4. CMRR

**Question Number : 113  Question Id : 6780945316  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

_____ multivibrator is used as an amplitude comparator.

**Options :**

1. Bistable

2. Monostable

3. Astable

4. Schmitt Trigger

**Question Number : 114  Question Id : 6780945317  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

In bootstrap sweep circuit, the amplifier gain should be,

**Options :**

1. Infinite

2. Finite

3. Unity

4. Zero

**Question Number : 115  Question Id : 6780945318  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The frequency of oscillation of Astable multivibrator using 555 timer is given as,

**Options :**

1. $\dfrac{1.45}{(R_A + R_B)C}$

2. $1.45(R_A + R_B)C$

3. $\dfrac{1.45}{(R_A + 2R_B)C}$

4. $1.45(R_A + 2R_B)C$

**Question Number : 116  Question Id : 6780945319  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

Superposition theorem can be applied only to circuits having

**Options :**

1. resistive elements

2. passive elements

3. non-linear elements

4. linear bilateral elements

**Question Number : 117  Question Id : 6780945320  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

For maximum transfer of power, internal resistance of the source should be

**Options :**

1. equal to load resistance

2. less than the load resistance

3. greater than the load resistance

4. zero

**Question Number : 118  Question Id : 6780945321  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

"Considering two loops A and B of a network and if an ideal voltage source **E** in loop A

produces a current **I** in loop B, then interchanging positions, if an identical source in

loop B produces the same current in loop A" – the statement is associated with,

**Options :**

1. Compensation theorem

2. Superposition theorem

3. Reciprocity theorem

4. Millman's theorem

Application of Norton's theorem to a circuit yields

Options :

1. Equivalent current source and admittance in series

2. Equivalent current source and admittance in parallel

3. Equivalent voltage source and impedance in series

4. Equivalent voltage source and impedance in parallel

The imaginary part of admittance is called as,

Options :

1. Resistance

2. Reactance

3. Susceptance

4. Conductance

The Q of a circuit can be increased by

Options :

1. increasing BW

2. decreasing BW

3. independent of BW

4. decreasing $f_o$

The VSWR of a perfectly matched transmission line is _____

Options :

1. 1

2. 0

3. -1

4. 5

**Question Number : 123 Question Id : 6780945326 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

If the load impedance in a transmission line is $Z_L$ and $Z_0$ is the characteristic

impedance, reflection coefficient is

**Options :**

1. $\dfrac{Z_L + Z_0}{Z_L - Z_0}$

2. $\dfrac{Z_L - Z_0}{Z_L + Z_0}$

3. $\dfrac{Z_L}{Z_0}$

4. $\dfrac{Z_0}{Z_L}$

**Question Number : 124 Question Id : 6780945327 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

In a series type ohmmeter

**Options :**

1. 'O' marking is on the left hand side of scale while ∞ marking is on the right

hand side

2. 'O' marking is on the right hand side of scale and ∞ marking on the left

hand side

3. Two marking can be left or right side of the scale

4. 'O' marking is in the middle of scale

**Question Number : 125 Question Id : 6780945328 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

A Q-meter is working on the principle of............

**Options :**

1. Parallel resonance

2.    Series resonance

3.    Either on Parallel or Series resonance

4.    Neither on Parallel nor Series resonance

**Question Number : 126  Question Id : 6780945329  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

A sampling CRO is used for……………

**Options :**

1.    HF

2.    VLF

3.    VHF

4.    LF

**Question Number : 127  Question Id : 6780945330  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

Time base generators are called………..

**Options :**

1.    compensating network

2.    phantastron

3.    sweep circuit

4.    restoring circuit

**Question Number : 128  Question Id : 6780945331  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The sensitivity of voltmeter is defined as

**Options :**

1.    $\Omega / V$

2.    $V / \Omega$

3.    $I / \Omega$

4.    $\Omega / I$

**Question Number : 129  Question Id : 6780945332  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The range of AF oscillators

Options :

1. 10 kHz to 30 MHz

2. 20 HZ to 20kHz

3. dc to 5 MHz

4. 1.5 MHz to 30 MHz

**Question Number : 130 Question Id : 6780945333 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

An SCR combines the features of ...............

**Options :**

1. A rectifier and resistance

2. A rectifier and transistor

3. A rectifier and capacitor

4. A rectifier and inductor

**Question Number : 131 Question Id : 6780945334 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

A triac has ................. semiconductor layers

**Options :**

1. Two

2. Three

3. Four

4. Five

**Question Number : 132 Question Id : 6780945335 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

A chopper

**Options :**

1. converts constant voltage dc into ac and then into variable voltage dc

2. converts constant voltage dc into variable voltage dc directly

3. converts ac of one frequency into ac of another frequency

4. converts ac to dc

**Question Number : 133 Question Id : 6780945336 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

_____ is a timer which controls the number of cycles for which the welding

current flows and the number of cycles for which it is disallowed

**Options :**

1. pulsation timer

2. line control timer

3. sequence timer

4. heat control timer

Question Number : 134  Question Id : 6780945337  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical

_____ method  has leading power factor

**Options :**

1. resistance heating

2. dielectric heating

3. arc heating

4. inductive heating

Question Number : 135  Question Id : 6780945338  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical

If the carrier of a 100% modulated AM wave is suppressed, the percentage power

saving will be---

**Options :**

1. 50

2. 150

3. 100

4. 66.66

Question Number : 136  Question Id : 6780945339  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical

The image channel rejection in a super heterodyne receiver comes from --

**Options :**

1. IF stages only

2. RF stages only

3. detector and RF stages only

4. detector, RF and IF stages

**Question Number : 137 Question Id : 6780945340 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

The most commonly used signaling for PCM is --

**Options :**

1. RZ

2. NRZ

3. Bipolar

4. Manchester

**Question Number : 138 Question Id : 6780945341 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

The FM modulation Index ---

**Options :**

1. Increases with both frequency deviation and modulation frequency

2. Decreases with frequency deviation and increases with modulation frequency

3. Increases with frequency deviation and decreases with modulation frequency

4. Is equal to twice the frequency deviation

**Question Number : 139 Question Id : 6780945342 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

In FM, the amount of frequency deviation is proportional to--

**Options :**

1. Amplitude of modulating signal

2. frequency of the carrier

3. the frequency of modulating signal

4. phase of modulating signal

**Question Number : 140  Question Id : 6780945343  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

In phase modulation. the frequency deviation is---

**Options :**

1. Independent of the modulating signal frequency

2. Inversely proportional to the modulating signal frequency

3. Directly proportional to the modulating signal frequency

4. Inversely proportional to the square root of the modulating frequency

**Question Number : 141  Question Id : 6780945344  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

Ground wave is effective when the transmitting and receiving antennas are....

**Options :**

1. Vertically Polarized

2. Horizontally Polarized

3. Circularly Polarized

4. Elliptically Polarized

**Question Number : 142  Question Id : 6780945345  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

Space wave field strength depends on....

**Options :**

1. only on direct ray

2. only on ground reflected rays

3. both on direct and ground reflected rays

4. inversely proportional to antenna heights

**Question Number : 143  Question Id : 6780945346  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

Critical frequency of the ionospheric layer. if $N_{max}$ is $1 \times 10^6$ electrons/m$^3$ is....

**Options :**

1. 9KHz

2. 81KHz

3. 9MHz

4. 81MHz

**Question Number : 144  Question Id : 6780945347  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

During day time the ionospheric layer that does not exist is

**Options :**

1. D

2. F

3. F1

4. F2

**Question Number : 145  Question Id : 6780945348  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The wavelength of a 100MHz Electro Magnetic Wave propagating through a

perfect non-magnetic dielectric with relative permittivity '9' is------

**Options :**

1. 3m

2. 3cm

3. 100cm

4. 10cm

**Question Number : 146  Question Id : 6780945349  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

An EM wave incident on a perfect conductor is-----

**Options :**

1. Entirely reflected

2. Partially reflected

3. Partially Transmitted

4. Fully Transmitted

**Question Number : 147  Question Id : 6780945350  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

Step-index optical fiber core refractive index is 1.48 with core-cladding index

difference 0.01, then cladding refractive index is-----

**Options :**

1. 0.0148

2. 1.46

3. 1.49

4. 148

**Question Number : 148  Question Id : 6780945351  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The power pattern of surface emitter LED is----

**Options :**

1. Half-power pattern

2. Full-power pattern

3. Lambertian Pattern

4. Quarter-power pattern

**Question Number : 149  Question Id : 6780945352  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The following, which splicing technique is used for permanent joint------

**Options :**

1. Fusion splice

2. V-groove splicing

3. Elastic –tube splice

4. Expanded beam splice

**Question Number : 150  Question Id : 6780945353  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The directivity of a half-wave dipole is-----

**Options :**

1. 1.50

2. 1.64

3. 1.0

4. 3.28

**Question Number : 151 Question Id : 6780945354 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

In N-number element yagi-uda antenna, number of reflectors are----

**Options :**

1. 1

2. N

3. N-1

4. N-2

**Question Number : 152 Question Id : 6780945355 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

In parabolic antenna. reflector is called------

**Options :**

1. Feed Antenna

2. Primary antenna

3. Secondary antenna

4. Directive antenna

**Question Number : 153 Question Id : 6780945356 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

The duplexer consists of ------

**Options :**

1. TR & ATR

2. only TR

3. only ATR

4. Oscillator

**Question Number : 154 Question Id : 6780945357 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

In Radar system, if the transmitted power is increased by 16 times, then the

detection range is ---------

**Options :**

1. increased by 16 times

2. reduced by 16times

3. doubled

4. reduced to half

**Question Number : 155  Question Id : 6780945358  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The basic principle of operation of Klystron is ------

**Options :**

1. Density Modulation

2. Velocity modulation

3. Frequency Modulation

4. Phase modulation

**Question Number : 156  Question Id : 6780945359  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

A satellite is a Radio repeater in ----

**Options :**

1. The Sky

2. Under Ground

3. Under water

4. Near the Ground Surface

**Question Number : 157  Question Id : 6780945360  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

A satellite system consists of a ---

**Options :**

1. Transponder only

2. Both Transponder and Ground-Based Station

3. Radar and Ground-Based station

4. Ground-Based Station only

**Question Number : 158  Question Id : 6780945361  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The cut-off wavelength for $TE_{10}$ mode for a standard rectangular waveguide is ---

**Options :**

1. $2a$

2. $a$

3. $a/2$

4. $4a$

**Question Number : 159  Question Id : 6780945362  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The dominant mode in most waveguides is----

**Options :**

1. $TM_{11}$

2. $TM_{10}$

3. $TE_{10}$

4. $TE_{11}$

**Question Number : 160  Question Id : 6780945363  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The binary equivalent of decimal number 57 is.

**Options :**

1. 111001

2. 01010111

3. 101111

4. 1100101

**Question Number : 161  Question Id : 6780945364  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The minimum number of NAND gates required to implement

$A + A\overline{B} + A\overline{B}C$ is

**Options :**

1. 0

2. 1

3. 4

4. 7

**Question Number : 162 Question Id : 6780945365 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

What logic function is produced by adding inverters to the inputs of OR gates.

**Options :**

1. NOR

2. NAND

3. AND

4. X-NOR

**Question Number : 163 Question Id : 6780945366 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

A full adder can be realized using.

**Options :**

1. One half adder, two OR gates

2. Two half adders, one OR gate

3. Two half adders, two OR gates

4. Two half adders, one AND gate

**Question Number : 164 Question Id : 6780945367 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

The Toggle mode for a J-K flip-flop is,

**Options :**

1. J=0,K=0

2. J=1,K=0

3. J=0,K=1

4. J=1,K=1

**Question Number : 165 Question Id : 6780945368 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

How many states a 6-bit ripple counter can have ?

**Options :**

1. 6

2. 12

3. 32

4. 64

**Question Number : 166  Question Id : 6780945369  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

A register which is capable to shift the data both to the right and left is called,

**Options :**

1. Parallel register

2. Universal register

3. Serial register

4. Static shift register

**Question Number : 167  Question Id : 6780945370  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

Which of the following is an example of volatile memory?

**Options :**

1. ROM

2. RAM

3. PROM

4. Hard-disk

**Question Number : 168  Question Id : 6780945371  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

Successive approximation type ADC with N output bits, the number of clocks

required is,

**Options :**

1. N

2. 2N+1

3. $2^N$

4. $2^N$-1

**Question Number : 169  Question Id : 6780945372  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

Which of the following is a D/A converter?

Options :

1. Successive approximation type

2. Dual slope technique

3. Weighted resistor type

4. Counter type technique

**Question Number : 170 Question Id : 6780945373 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

In a 8085 microprocessor, the register which holds address of the next instruction

to be fetched is.

Options :

1. Accumulator

2. Program counter

3. Stack pointer

4. Instructor Register

**Question Number : 171 Question Id : 6780945374 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

8085 microprocessor does not have

Options :

1. Zero flag

2. Sign flag

3. Parity flag

4. Overflow flag

**Question Number : 172 Question Id : 6780945375 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

The 8051 Microcontroller is of ......pin package as a........Processor

Options :

1. 30, 1 byte

2. 20, 1 byte

3. 40, 8 bit

4. 40, 8 byte

**Question Number : 173  Question Id : 6780945376  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

In 8051, which interrupt has highest priority

**Options :**

1. IE1

2. TF0

3. IE0

4. TF1

**Question Number : 174  Question Id : 6780945377  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

8051 has………16 bit counter/timers

**Options :**

1. 1

2. 2

3. 3

4. 4

**Question Number : 175  Question Id : 6780945378  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

In 8085 processor, which interrupt is Edge trigger interrupt

**Options :**

1. Trap

2. RST 7.5

3. RST 6.5

4. RST 5.5

**Question Number : 176  Question Id : 6780945379  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The interrupt having highest priority in 8085 processor is

**Options :**

1. Trap

2. RST 7.5

3. RST 6.5

4. RST 5.5

**Question Number : 177  Question Id : 6780945380  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

AJMP will cause a jump with in......Range

**Options :**

1. 16KB

2. 64KB

3. 2KB

4. 1KB

**Question Number : 178  Question Id : 6780945381  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The instruction used to access data from external memory

**Options :**

1. MOV

2. MOVC

3. MOVX

4. MOVN

**Question Number : 179  Question Id : 6780945382  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

Registers r15,r13 in ARM Processor are

**Options :**

1. LR,SP

2. SP,PC

3. PC,SP

4. SP,LR

**Question Number : 180  Question Id : 6780945383  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

Trace period of a horizontal line is

**Options :**

1. 18720 µs

2. 1280 µs

3. 20 ms

4. 100s

**Question Number : 181  Question Id : 6780945384  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

Image Orthicon is based on

**Options :**

1. Photo conduction principle

2. Photo emission principle

3. Thermal emission

4. Electromagnetic principle

**Question Number : 182  Question Id : 6780945385  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

Operation of CCD image sensors is based on

**Options :**

1. Photo conductivity

2. Photo voltaic Principle

3. Photo emission

4. Photo electric

**Question Number : 183  Question Id : 6780945386  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

FM detector employed in the sound section of a television receiver is generally:

**Options :**

1. A ratio detector

2. A frequency discriminator

3. Amplifier

4. Loud speaker

The Television picture tube has:

**Options :**

1. Magnetic focus and electrostatic deflection

2. Magnetic focus and magnetic deflection

3. Electrostatic focus and electrostatic deflection

4. Electrostatic focus and magnetic deflection

Optical fibers use reflection to guide light through

**Options :**

1. Light

2. channel

3. plastic

4. metal

Which network supports pipelining effect?

**Options :**

1. Circuit-switched networks

2. Message-switched networks

3. Packet switched networks

4. Virtual circuit switched networks.

The layer responsible for end to end delivery of the entire message is

**Options :**

1. Application layer

2. Transport layer

3. Session layer

4. Data link layer

**Question Number : 188  Question Id : 6780945391  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

Which device is used to handle carrier detection and collision detection in LANs?

Options :

1. Router

2. Repeater

3. Packet assembler/disassembler

4. Trans-receiver

**Question Number : 189  Question Id : 6780945392  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

In which method, one channel carries all transmissions simultaneously

Options :

1. TDMA

2. CDMA

3. FDMA

4. CSMA

**Question Number : 190  Question Id : 6780945393  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

Transmission control protocol (TCP), is also protocol like,

Options :

1. UDP

2. SCTP

3. CMP

4. IP

**Question Number : 191  Question Id : 6780945394  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

In synchronous transfer mode(ATM), network to network interfaces are used to

connect the

Options :

1. Cells

2. frames

3. endpoints

4. switches

**Question Number : 192  Question Id : 6780945395  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

How will you print  \n  on the screen?

**Options :**

1. printf("\n");

2. echo "\\n";

3. printf('\n');

4. printf("\\n");

**Question Number : 193  Question Id : 6780945396  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

Preprocessor feature that supply line numbers and filenames to compiler is called?

**Options :**

1. Selective inclusion

2. macro substitution

3. Concatenation

4. Line control

**Question Number : 194  Question Id : 6780945397  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The value obtained in the function is given back to main  by using _____

keyword?

**Options :**

1. return

2. static

3. new

4. volatile

**Question Number : 195  Question Id : 6780945398  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

Which of the following are the two main components of the CPU?

**Options :**

1. Control Unit and Registers

2. Registers and Main Memory

3. Control unit and ALU

4. ALU and bus

**Question Number : 196  Question Id : 6780945399  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

Personal computers used a number of chips mounted on a main circuit board.

What is the common name for such boards?

**Options :**

1. Daughterboard

2. Motherboard

3. Father board

4. Child board

**Question Number : 197  Question Id : 6780945400  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

The first recognized modern embedded system is

**Options :**

1. Apple Computer

2. Apollo Guidance Computer

3. Calculator

4. Cell phone

**Question Number : 198  Question Id : 6780945401  Display Question Number : Yes  Single Line Question Option : No  Option Orientation : Vertical**

In VLSI design, which process deals with the determination of resistance &

capacitance of interconnections?

**Options :**

1. Floor-planning

2. Placement & Routing

3. Testing

4. Extraction

**Question Number : 199 Question Id : 6780945402 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

A set of Concurrent assignment statements to represent---------style of modeling

in Verilog HDL.

**Options :**

1. Behavioral

2. Data flow

3. Structural

4. Mixed style

**Question Number : 200 Question Id : 6780945403 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical**

An IC containing more than 100000 gates will be designated as

**Options :**

1. LSI

2. VLSI

3. MSI

4. ULSI