

# Telangana State Council Higher Education

## Notations :

- 1.Options shown in green color and with ✓ icon are correct.
- 2.Options shown in red color and with ✗ icon are incorrect.

<b>Question Paper Name:</b>	Electronics and Communication Engineering 11th May 2019 Shift1
<b>Subject Name:</b>	Electronics and Communication Engineering
<b>Creation Date:</b>	2019-05-11 13:35:18
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<b>Display Marks:</b>	No
<b>Share Answer Key With Delivery Engine:</b>	Yes
<b>Actual Answer Key:</b>	Yes
<b>Calculator:</b>	None
<b>Magnifying Glass Required?:</b>	No
<b>Ruler Required?:</b>	No
<b>Eraser Required?:</b>	No
<b>Scratch Pad Required?:</b>	No
<b>Rough Sketch/Notepad Required?:</b>	No
<b>Protractor Required?:</b>	No
<b>Show Watermark on Console?:</b>	Yes
<b>Highlighter:</b>	No
<b>Auto Save on Console?:</b>	No

## Electronics and Communication Engineering

<b>Group Number :</b>	1
<b>Group Id :</b>	89465814
<b>Group Maximum Duration :</b>	0
<b>Group Minimum Duration :</b>	180
<b>Revisit allowed for view? :</b>	No
<b>Revisit allowed for edit? :</b>	No
<b>Break time:</b>	0
<b>Group Marks:</b>	200

## Mathematics

<b>Section Id :</b>	89465852
<b>Section Number :</b>	1
<b>Section type :</b>	Online
<b>Mandatory or Optional:</b>	Mandatory
<b>Number of Questions:</b>	50
<b>Number of Questions to be attempted:</b>	50
<b>Section Marks:</b>	50
<b>Display Number Panel:</b>	Yes
<b>Group All Questions:</b>	No

Sub-Section Number: 1  
Sub-Section Id: 89465857  
Question Shuffling Allowed : Yes

Question Number : 1 Question Id : 8946582605 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

Let  $M = (a_{ij})$  be a  $10 \times 10$  matrix such that  $a_{ij} = \begin{cases} 1, & \text{if } i+j=11 \\ 0, & \text{otherwise} \end{cases}$ . Then, the determinant of  $M$  is \_\_\_\_\_.

Options :

1. ✘ 0
2. ✘ 1
3. ✔ -1
4. ✘ 11

Question Number : 2 Question Id : 8946582606 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

Let  $A$  and  $B$  be two square matrices of order  $n$ . If  $AB = A$ ,  $BA = B$  then  $A^2 + B^2 = \underline{\hspace{2cm}}$ .

Options :

1. ✘  $AB$
2. ✘  $A - B$
3. ✘ 0
4. ✔  $A + B$

Question Number : 3 Question Id : 8946582607 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

Consider the system of linear equations  $x + y + z = 3$ ,  $x - y - z = 4$ ,  $x - 5y + \alpha z = 6$ . Then, the value of  $\alpha$  for which this system has an infinite number of solutions is \_\_\_\_\_.

Options :

1. ✓ -5

2. ✗ 5

3. ✗ 3

4. ✗ 1

Question Number : 4 Question Id : 8946582608 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If  $A(\alpha, \beta) = \begin{pmatrix} \cos \alpha & \sin \alpha & 0 \\ -\sin \alpha & \cos \alpha & 0 \\ 0 & 0 & e^\beta \end{pmatrix}$ , then the inverse of the matrix  $A(\alpha, \beta)$  is \_\_\_\_\_.

Options :

1. ✗  $A(\alpha, \beta)$

2. ✗  $A(\alpha, -\beta)$

3. ✓  $A(-\alpha, -\beta)$

4. ✗  $A(-\alpha, \beta)$

Question Number : 5 Question Id : 8946582609 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The rational fraction  $\frac{x^2 + 1}{(x^2 + 4)(x - 2)}$  is equal to \_\_\_\_\_

Options :

1. ✗  $\frac{3x + 6}{8(x^2 + 4)} + \frac{5}{4(x - 2)}$

2. ✗  $\frac{3x + 6}{4(x^2 + 4)} + \frac{5}{8(x - 2)}$

3. ✓  $\frac{3x+6}{8(x^2+4)} + \frac{5}{8(x-2)}$

4. ✗  $\frac{3x+6}{(x^2+4)} + \frac{5}{(x-2)}$

Question Number : 6 Question Id : 8946582610 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If  $\log_2 3 = a, \log_3 5 = b, \log_7 2 = c$ , then  $\log_{140} 63 =$  \_\_\_\_\_.

Options :

1. ✗  $\frac{1-2ac}{2c+abc+1}$

2. ✗  $\frac{1-2ac}{2c-abc-1}$

3. ✗  $\frac{1+2ac}{2c-abc-1}$

4. ✓  $\frac{1+2ac}{2c+abc+1}$

Question Number : 7 Question Id : 8946582611 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

$$\cos \frac{2\pi}{7} + \cos \frac{4\pi}{7} + \cos \frac{6\pi}{7} = \text{_____}.$$

Options :

1. ✗ 1

2. ✗  $\frac{1}{2}$

3. ✓  $\frac{-1}{2}$

4. ✘ 0

Question Number : 8 Question Id : 8946582612 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If the angles  $A, B$  and  $C$  of a triangle are in an arithmetic progression and if  $a, b$  and  $c$  denote the lengths of the sides opposite to  $A, B$  and  $C$  respectively, then the value of the

expression  $\frac{a}{c} \sin 2C + \frac{c}{a} \sin 2A$  is  $\underline{\hspace{1cm}}$ .

Options :

1. ✔  $\sqrt{3}$

2. ✘  $\frac{\sqrt{3}}{2}$

3. ✘ 1

4. ✘  $\frac{1}{2}$

Question Number : 9 Question Id : 8946582613 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If  $\sin x + \sin y = \frac{1}{4}$  and  $\cos x + \cos y = \frac{1}{3}$ , then  $\cot(x + y) = \underline{\hspace{1cm}}$ .

Options :

1. ✔  $\frac{7}{24}$

2. ✘  $\frac{24}{7}$

3. ✘  $\frac{3}{4}$

4. ✘ 1

Question Number : 10 Question Id : 8946582614 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If  $\sin(x^\circ + 28^\circ) = \cos(3x^\circ - 78^\circ)$  and  $0^\circ < x^\circ < 90^\circ$ , then, which of the following is the value of  $x^\circ$ ?

Options :

1. ✘  $50^\circ$

2. ✘  $30^\circ$

3. ✘  $16^\circ$

4. ✔  $8^\circ$

Question Number : 11 Question Id : 8946582615 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If  $x = \tan\left(\operatorname{Cosec}^{-1}\frac{65}{63}\right)$  and  $y = \sec^2\left(\operatorname{Cot}^{-1}\frac{1}{2}\right) + \operatorname{cosec}^2\left(\operatorname{Tan}^{-1}\frac{1}{3}\right)$ , then  $(x, y) =$  \_\_\_\_\_.

Options :

1. ✔  $\left(\frac{63}{16}, 15\right)$

2. ✘  $\left(\frac{16}{63}, 15\right)$

3. ✘  $\left(\frac{63}{16}, 5\right)$

4. ✘  $\left(\frac{16}{63}, 5\right)$

Question Number : 12 Question Id : 8946582616 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The equation  $\tan^{-1}\left(\frac{x+1}{x-1}\right) + \tan^{-1}\left(\frac{x-1}{x}\right) = \tan^{-1}(-7)$  has \_\_\_\_\_.

Options :

1. ✓ unique solution  $x = 2$
2. ✗ two solutions  $x = 1, 2$
3. ✗ no solution
4. ✗ infinite number of solutions

Question Number : 13 Question Id : 8946582617 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In a triangle  $ABC$ , let  $a, b$  and  $c$  denote the lengths of the sides opposite to

$A, B$  and  $C$  respectively. If  $\frac{1}{a+c} + \frac{1}{b+c} = \frac{3}{a+b+c}$ , then the angle  $C$  is \_\_\_\_\_.

Options :

1. ✗  $30^\circ$
2. ✗  $90^\circ$
3. ✓  $60^\circ$
4. ✗  $45^\circ$

Question Number : 14 Question Id : 8946582618 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If  $\sin hx = 3$  then  $x =$  \_\_\_\_\_.

Options :

1. ✓  $\log(3 + \sqrt{10})$
2. ✗  $\log(3 - \sqrt{10})$

3. ✘  $\log(6 + \sqrt{10})$

4. ✘ 1

Question Number : 15 Question Id : 8946582619 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is NOT true for the complex numbers  $z_1$  and  $z_2$  ?

Options :

1. ✘  $\frac{z_1}{z_2} = \frac{z_1 \bar{z}_2}{|z_2|^2}$

2. ✘  $|z_1 + z_2| \leq |z_1| + |z_2|$

3. ✔  $|z_1 + z_2| \leq ||z_1| - |z_2||$

4. ✘  $|z_1 + z_2|^2 + |z_1 - z_2|^2 = 2|z_1|^2 + 2|z_2|^2$

Question Number : 16 Question Id : 8946582620 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If a complex number  $z = \frac{\sqrt{3}}{2} + i\frac{1}{2}$ , then  $z^4$  is \_\_\_\_\_.

Options :

1. ✘  $2\sqrt{2} + 2i$

2. ✔  $\frac{-1}{2} + i\frac{\sqrt{3}}{2}$

3. ✘  $\frac{\sqrt{3}}{2} - i\frac{1}{2}$

4. ✘  $\frac{\sqrt{3}}{8} - i\frac{1}{8}$



Question Number : 17 Question Id : 8946582621 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The equation of the straight line which makes intercepts  $r$  and  $s$  on the coordinate axes

such that  $r + s = 5$  and  $rs = 6$  is  $ax + by + c = 0$ , then  $a + b + c = \underline{\hspace{2cm}}$ .

Options :

1. ✘ 11

2. ✘ 5

3. ✘ -7

4. ✔ -1

Question Number : 18 Question Id : 8946582622 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If a straight line  $ax + by + \sqrt{5} = 0$  touches the circle  $x^2 + y^2 = 5$ , then which of the

following is TRUE?

Options :

1. ✘  $5(a^2 + b^2) = 1$

2. ✘  $a^2 + b^2 = \sqrt{5}$

3. ✔  $a^2 + b^2 = 1$

4. ✘  $\sqrt{a^2 + b^2} = 5$

Question Number : 19 Question Id : 8946582623 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If a chord of length 12 cm is at a distance of  $4\sqrt{10}$  cm from the centre of the circle, then

the radius of the circle is \_\_\_\_\_.

Options :

1. ✓ 14 cm

2. ✗  $\sqrt{304}$  cm

3. ✗ 4 cm

4. ✗  $\sqrt{124}$  cm

Question Number : 20 Question Id : 8946582624 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The 2019<sup>th</sup> derivative of the function  $(x-1)e^{-x}$  is \_\_\_\_\_

Options :

1. ✗  $\frac{x-2019}{e^x}$

2. ✗  $\frac{2019-x}{e^x}$

3. ✗  $\frac{x-2020}{e^x}$

4. ✓  $\frac{2020-x}{e^x}$

Question Number : 21 Question Id : 8946582625 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If  $z = f(x+ct) + \varphi(x-ct)$ , then  $\frac{\partial^2 z}{\partial t^2} =$  \_\_\_\_\_.

Options :

1. ✓  $c^2 \frac{\partial^2 z}{\partial x^2}$

2. ✘  $-c^2 \frac{\partial^2 z}{\partial x^2}$

3. ✘  $\frac{1}{c^2} \frac{\partial^2 z}{\partial x^2}$

4. ✘  $-\frac{1}{c^2} \frac{\partial^2 z}{\partial x^2}$

Question Number : 22 Question Id : 8946582626 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

If  $x = r \cos \theta$ ,  $y = r \sin \theta$  and  $U = \frac{f(\theta)}{r}$  then  $x \frac{\partial U}{\partial x} + y \frac{\partial U}{\partial y} =$  \_\_\_\_\_.

Options :

1. ✘ 0

2. ✘  $U$

3. ✔  $-U$

4. ✘  $2U$

Question Number : 23 Question Id : 8946582627 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

Let  $f(x+y) = f(x)f(y)$ ,  $\forall x, y$  and  $f'(0) = 5$ ,  $f(2019) = 15$ . Then the value of  $f'(2019)$  is \_\_\_\_\_.

Options :

1. ✘ 3

2. ✔ 75

3. ✘  $\frac{1}{3}$

4. ✘  $\frac{1}{75}$

Question Number : 24 Question Id : 8946582628 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The set of values of  $x$  for which the function  $f(x) = 2x^3 - 9x^2 + 12x + 4$  is increasing is \_\_\_\_\_.

Options :

1. ✘  $1 < x < 2$

2. ✘ all  $x \in \mathbb{R}$

3. ✔  $\mathbb{R} - [1, 2]$

4. ✘  $x \geq 2$

Question Number : 25 Question Id : 8946582629 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

$\lim_{x \rightarrow \infty} x \left( \log \left( 1 + \frac{x}{2} \right) - \log \left( \frac{x}{2} \right) \right) = \text{_____}.$

Options :

1. ✘  $e^2$

2. ✘  $\infty$

3. ✘ 1

4. ✔ 2

Question Number : 26 Question Id : 8946582630 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If  $f(x, y, z) = x^3 + xz^2 + y^3 + xyz$ ,  $x = e^t$ ,  $y = \cos t$ ,  $z = t^3$  then  $\frac{df}{dt}$  at  $t = 0$  is \_\_\_\_\_.

Options :

1. ✘ 2

2. ✘ 4

3. ✘ e

4. ✔ 3

Question Number : 27 Question Id : 8946582631 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is the value of  $5050 \times \frac{\int_0^1 (1 - (1-x)^{50})^{100} x^{49} dx}{\int_0^1 (1-x^{50})^{101} x^{49} dx}$ ?

Options :

1. ✔ 5100

2. ✘ 1

3. ✘ 5050

4. ✘  $\frac{1}{2}$

Question Number : 28 Question Id : 8946582632 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

$\int_0^1 \max \left\{ x, \frac{1}{2} - x \right\} dx = \underline{\hspace{2cm}}$ .

Options :

1. ✘ 0

2. ✘  $\frac{1}{2}$

3. ✔  $\frac{9}{16}$

4. ✘  $\frac{9}{8}$

Question Number : 29 Question Id : 8946582633 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

$$\lim_{n \rightarrow \infty} \frac{1}{n^6} \sum_{k=1}^n k^5 = \underline{\hspace{2cm}}.$$

Options :

1. ✔  $\frac{1}{6}$

2. ✘  $\frac{1}{5}$

3. ✘ 1

4. ✘ 6

Question Number : 30 Question Id : 8946582634 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

$$\int_{-1}^1 \frac{x^{15} (1-x^2)^{12}}{(1+x^2)^8} dx = \underline{\hspace{2cm}}.$$

Options :

1. ✘ 0

2. ✔  $\frac{22}{7} - \pi$

3. ✘  $\frac{2}{105}$

4. ✘  $\frac{71}{15} - \frac{3\pi}{4}$

Question Number : 31 Question Id : 8946582635 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

The area of the region bounded by the curves  $y = 2 - x^2$  and  $y = -x$  is \_\_\_\_\_.

Options :

1. ✘ 1
2. ✘  $\frac{8}{19}$
3. ✘  $\frac{35}{4}$
4. ✔  $\frac{27}{6}$

Question Number : 32 Question Id : 8946582636 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The volume of the solid obtained by revolving the region bounded by the curves  $y = x^3$ ,  $y = 8$  and  $x = 0$  about the  $y$ -axis is \_\_\_\_\_

Options :

1. ✘  $\frac{96}{5}$
2. ✔  $\frac{96\pi}{5}$
3. ✘  $\frac{32\pi}{5}$
4. ✘  $\frac{32}{5}$

Question Number : 33 Question Id : 8946582637 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The value of  $\int_0^{\pi} \theta \sin^2 \theta \cos^4 \theta d\theta$  is \_\_\_\_\_.

Options :

1. ✔  $\frac{\pi^2}{32}$

2. ✘  $\frac{\pi}{32}$

3. ✘  $\frac{\pi^2}{16}$

4. ✘  $\frac{\pi}{16}$

Question Number : 34 Question Id : 8946582638 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The average value of the function  $f(x) = 4 - x^2$  over the interval  $[-1, 3]$  is \_\_\_\_\_.

Options :

1. ✘ 5

2. ✘  $\frac{20}{3}$

3. ✔  $\frac{5}{3}$

4. ✘ 1

Question Number : 35 Question Id : 8946582639 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The differential equation  $x \frac{dy}{dx} = y + x^2$ ,  $x > 0$  satisfying  $y(0) = 0$  has \_\_\_\_\_.

Options :

1. ✔ infinitely many solutions

2. ✘ no solution

3. ✘ a unique solution

4. ✘ exactly two solutions



Question Number : 36 Question Id : 8946582640 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The differential equation  $(axy^3 + y \cos x)dx + (x^2y^2 + b \sin x)dy = 0$  is an exact differential equation for \_\_\_\_\_.

Options :

1. ✘  $a = 1, b = \frac{3}{2}$

2. ✘  $a = \frac{3}{2}, b = 1$

3. ✔  $a = \frac{2}{3}, b = 1$

4. ✘  $a = 1, b = \frac{2}{3}$

Question Number : 37 Question Id : 8946582641 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If  $\sin x$  is a solution of the differential equation  $\frac{d^4y}{dx^4} + 2\frac{d^3y}{dx^3} + 6\frac{d^2y}{dx^2} + 2\frac{dy}{dx} + 5y = 0$ ,

then the general solution is \_\_\_\_\_.

Options :

1. ✔  $y = c_1 \sin x + c_2 \cos x + e^{-x}(c_3 \sin 2x + c_4 \cos 2x)$

2. ✘  $y = c_1 \sin x + c_2 \cos x + c_3 \sin 2x + c_4 \cos 2x$

3. ✘  $y = c_1 \sin x + c_2 \cos x + c_3 e^{-3x} + c_4 e^{-2x}$

4. ✘  $y = c_1 \sin x + c_2 \cos x + c_3 e^{3x} + c_4 e^{2x}$

Question Number : 38 Question Id : 8946582642 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If  $D \equiv \frac{d}{dx}$ , then  $\frac{1}{D^2 - 4D + 13}(6e^{2x} \sin 3x)$  is \_\_\_\_\_.

Options :

1. ✓  $-xe^{2x} \cos 3x$

2. ✗  $xe^{2x} \cos 3x$

3. ✗  $-xe^{2x} \sin 3x$

4. ✗  $xe^{2x} \sin 3x$

Question Number : 39 Question Id : 8946582643 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The general solution of  $\left(\frac{e^{-2\sqrt{x}}}{\sqrt{x}} - \frac{y}{\sqrt{x}}\right) \frac{dx}{dy} = 1$  is \_\_\_\_\_.

Options :

1. ✗  $y = e^{2\sqrt{x}} (2\sqrt{x} + c)$

2. ✗  $y = 2\sqrt{x} e^{2\sqrt{x}} + c$

3. ✗  $y = 2\sqrt{x} e^{-2\sqrt{x}} + c$

4. ✓  $y = e^{-2\sqrt{x}} (2\sqrt{x} + c)$

Question Number : 40 Question Id : 8946582644 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Let  $y$  be the solution of the differential equation  $\frac{dy}{dx} + y = x$ ,  $x \in \mathbb{R}$  and  $y(-1) = 0$ .

Then,  $y(1)$  is equal to \_\_\_\_\_.

Options :

1. ✘  $\frac{2}{e} - \frac{2}{e^2}$

2. ✔  $2e^{-2}$

3. ✘  $2 - \frac{2}{e}$

4. ✘  $2 - 2e$

Question Number : 41 Question Id : 8946582645 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If the substitution  $x = X + h$ ,  $y = Y + k$  transforms the differential equation  $(y - x + 1)dy - (y + x + 2)dx = 0$  into a homogeneous equation, then the value of  $(h, k)$  is \_\_\_\_\_.

Options :

1. ✘  $\left(\frac{1}{2}, \frac{3}{2}\right)$

2. ✔  $\left(\frac{-1}{2}, \frac{-3}{2}\right)$

3. ✘  $\left(\frac{3}{2}, \frac{1}{2}\right)$

4. ✘  $\left(\frac{-3}{2}, \frac{-1}{2}\right)$

Question Number : 42 Question Id : 8946582646 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The general solution of  $\frac{dy}{dx} - y = y^2(\sin x + \cos x)$  is \_\_\_\_\_.

Options :

1. ✘  $y = \frac{1}{ce^x - \sin x}$

2. ✘  $y = ce^{-x} - e^x \sin x$

3. ✘  $y = ce^{-x} - \sin x$

4. ✔  $y = \frac{1}{ce^{-x} - \sin x}$

Question Number : 43 Question Id : 8946582647 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

The Laplace transform of the function  $f(t) = \begin{cases} \sin t, & \text{for } 0 \leq t \leq \pi \\ 0, & \text{for } t > \pi \end{cases}$

is \_\_\_\_\_.

Options :

1. ✘  $\frac{1}{(1+s^2)}$  for all  $s > 0$

2. ✘  $\frac{1}{(1+s^2)}$  for all  $s < \pi$

3. ✔  $\frac{(1+e^{-\pi s})}{(1+s^2)}$  for all  $s > 0$

4. ✘  $\frac{e^{-\pi s}}{(1+s^2)}$  for all  $s > 0$

Question Number : 44 Question Id : 8946582648 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

The inverse Laplace transform of  $\frac{5}{s} - \frac{3e^{-3s}}{s} - \frac{2e^{-7s}}{s}$  is \_\_\_\_\_.

Options :

1. ✘  $f(x) = \begin{cases} 5, & 0 < x < 3 \\ 0, & 3 < x < 7 \\ 2, & x > 7 \end{cases}$

2. ✘  $f(x) = \begin{cases} 5, & 0 < x < 7 \\ 2, & x > 7 \end{cases}$

3. ✔  $f(x) = \begin{cases} 5, & 0 < x < 3 \\ 2, & 3 < x < 7 \\ 0, & x > 7 \end{cases}$

4. ✘  $f(x) = \begin{cases} 5, & 0 < x < 7 \\ 0, & x > 7 \end{cases}$

Question Number : 45 Question Id : 8946582649 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
 Single Line Question Option : No Option Orientation : Vertical  
 Correct Marks : 1 Wrong Marks : 0

The Laplace transform of a function  $f(x)$  is  $F(s) = \frac{1}{s^3 + 2s^2 + 2s}$  Then,  $\lim_{x \rightarrow 0} f(x) =$

\_\_\_\_\_.

Options :

1. ✔ 0

2. ✘ 3

3. ✘  $\infty$

4. ✘  $\frac{1}{2}$

Question Number : 46 Question Id : 8946582650 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
 Single Line Question Option : No Option Orientation : Vertical  
 Correct Marks : 1 Wrong Marks : 0

The Laplace transform of the solution of the differential equation  $\frac{dy}{dx} - 2y = e^{5x}$  with the

initial condition  $y(0) = 3$  is \_\_\_\_\_.

Options :

1. ✘  $\frac{1}{3(s-2)} + \frac{1}{3(s-5)}$

2. ✘  $\frac{8}{3(s-2)} + \frac{1}{s-5}$

3. ✔  $\frac{8}{3(s-2)} + \frac{1}{3(s-5)}$

4. ✘  $\frac{8}{s-2} + \frac{1}{3(s-5)}$

Question Number : 47 Question Id : 8946582651 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If  $L(y(x)) = Y(s)$  and  $y(x) = x^3 + \int_0^x \sin(x-t)y(t)dt$  then  $\frac{1}{6}Y(s) =$  \_\_\_\_\_.

Options :

1. ✔  $\left(\frac{1}{s^4} + \frac{1}{s^6}\right)$

2. ✘  $\left(\frac{1}{s^3} + \frac{1}{s^5}\right)$

3. ✘  $\left(\frac{1}{s^3} + \frac{1}{s^7}\right)$

4. ✘  $\left(\frac{1}{s} + \frac{1}{s^3}\right)$

Question Number : 48 Question Id : 8946582652 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For  $x > 0$ ,  $\int_0^{\infty} \frac{\sin xt}{t} dt$  is \_\_\_\_\_.

Options :

1. ✘ 0

2. ✘  $\frac{\pi}{2x}$

3. ✘  $\frac{1}{x}$

4. ✔  $\frac{\pi}{2}$

Question Number : 49 Question Id : 8946582653 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If  $f(x) = \frac{1}{2}a_0 + \sum_{n=1}^{\infty} (a_n \cos nx + b_n \sin nx)$  is the Fourier series of the function

$$f(x) = \begin{cases} 0, & -\pi \leq x < 0 \\ \pi, & 0 \leq x \leq \pi \end{cases} \text{ then, which of the following is TURE?}$$

Options :

1. ✘  $a_n = 0$ , for all  $n \geq 0$

2. ✘  $a_0 = \frac{\pi}{2}$  and  $a_n = 0$ , for all  $n \geq 1$

3. ✘  $b_n \neq 0$ , for all  $n \geq 1$

4. ✔  $a_0 = \pi$  and  $a_n = 0$ , for all  $n \geq 1$

Question Number : 50 Question Id : 8946582654 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A function  $f(x)$  is such that  $f(x + 2\pi) = f(x)$  and  $f(x) = x$ ,  $-\pi \leq x \leq \pi$ . The Fourier series of  $f(x)$  is \_\_\_\_\_.

Options :



1. ✓  $2(\sin x - \frac{1}{2}\sin 2x + \frac{1}{3}\sin 3x - \dots)$

2. ✗  $2(\sin x + \frac{1}{2}\sin 2x + \frac{1}{3}\sin 3x + \dots)$

3. ✗  $2(\cos x - \frac{1}{2}\cos 2x + \frac{1}{3}\cos 3x - \dots)$

4. ✗  $2(\cos x + \frac{1}{2}\cos 2x + \frac{1}{3}\cos 3x + \dots)$

Physics

Section Id :	89465853
Section Number :	2
Section type :	Online
Mandatory or Optional:	Mandatory
Number of Questions:	25
Number of Questions to be attempted:	25
Section Marks:	25
Display Number Panel:	Yes
Group All Questions:	No

Sub-Section Number:	1
Sub-Section Id:	89465858
Question Shuffling Allowed :	Yes

Question Number : 51 Question Id : 8946582655 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The dimensional formula for gravitational constant is \_\_\_\_\_.

Options :

1. ✓  $L^3T^{-2}M^{-1}$

2. ✗  $L^3T^2M^{-1}$

3. ✗  $L^2T^3M^{-2}$

4. ✗  $L^3T^1M^{-3}$



Question Number : 52 Question Id : 8946582656 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The dimensions of the quantities in one of the following pairs are same. Identify the pairs.

Options :

1. ✓ torque and work
2. ✗ angular momentum and work
3. ✗ energy and Young's modules
4. ✓ light year and wavelength

Note: For this question, ambiguity is found in question/answer. Candidate will get full marks for this question if any of the correct options are chosen.

Question Number : 53 Question Id : 8946582657 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is not correct?

Options :

1. ✗  $j \times i = -k$
2. ✗  $k \times j = -i$
3. ✗  $i \times k = -j$
4. ✓  $k \times i = -j$

Question Number : 54 Question Id : 8946582658 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If  $0.5 i + 0.8 j + c k$  is a unit vector then  $c$  is \_\_\_\_\_.

Options :

1. ✗  $\sqrt{0.89}$
2. ✗ 0.2
3. ✗ 0.3

4. ✓  $\sqrt{0.11}$

Question Number : 55 Question Id : 8946582659 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

Which of the following is correct?

Options :

1. ✗  $A.B \neq B.A$

2. ✓  $A.(B+C) = A.B + C.A$

3. ✗  $A.B = A.B - A.C$

4. ✗  $A.B = -B.A$

Question Number : 56 Question Id : 8946582660 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

The acceleration due to gravity on the surface of the earth is given by \_\_\_\_\_

Options :

1. ✗  $G$

2. ✓  $GM/R^2$

3. ✗  $GM/R$

4. ✗  $GM$

Question Number : 57 Question Id : 8946582661 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

The value of  $g$  is maximum at \_\_\_\_\_.

Options :

1. ✗ equator

2. ✓ Pole

3. ✘ higher altitudes

4. ✘ at the centre of the earth

Question Number : 58 Question Id : 8946582662 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

When the speed of rotation of earth increases your weight \_\_\_\_\_

Options :

1. ✘ increases

2. ✔ decreases

3. ✘ remains constant

4. ✘ becomes zero

Question Number : 59 Question Id : 8946582663 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

The value of G is zero at \_\_\_\_\_

Options :

1. ✔ nowhere

2. ✘ the centre of the earth

3. ✘ surface of the earth

4. ✘ pole

Question Number : 60 Question Id : 8946582664 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

If the linear momentum is increased by 50%, the kinetic energy will be increased  
by \_\_\_\_\_

Options :

1. ✘ 50%

2. ✘ 100%

3. ✔ 125%

4. ✘ 25%

Question Number : 61 Question Id : 8946582665 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A metallic block slides down a smooth inclined plane when released from the top, while the other falls freely from the same point, then \_\_\_\_\_

Options :

1. ✔ both will reach the ground with the same velocity

2. ✘ both will reach the ground together

3. ✘ both will reach the ground travelling with same acceleration

4. ✘ the block sliding down the plane will strike earlier

Question Number : 62 Question Id : 8946582666 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A long spring is stretched by 2 cm and its potential energy is  $u$ . If the spring is stretched by 10 cm, then the potential energy stored in it will be \_\_\_\_\_.

Options :

1. ✘  $u/24$

2. ✘  $u/5$

3. ✘  $5u$

4. ✔  $25u$

Question Number : 63 Question Id : 8946582667 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Two masses of 1 gm and 4 gm are moving with equal kinetic energies. The ratio of the magnitudes of their linear momentum is \_\_\_\_\_

Options :

1. ✘ 4:1

2. ✘  $\sqrt{2}:1$

3. ✔ 1:2

4. ✘ 1:16

Question Number : 64 Question Id : 8946582668 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A body is dropped from rest at height 0.5 m. What will be its velocity when it just strikes the ground?

Options :

1. ✘ 7 m/s

2. ✘ 9.8 m/s

3. ✘ 4.9 m/s

4. ✔  $\sqrt{9.8}$  m/s

Question Number : 65 Question Id : 8946582669 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A particle moves such that its acceleration  $a$  is given by  $a = -bx$  where  $x$  is the displacement from equilibrium and  $b$  is a constant. The period of Oscillation is \_\_\_\_\_ .

Note: For this question, discrepancy is found in question/answer. Full Marks is being awarded to all candidates.

Options :

1.  $2\pi b$

2.  $2\pi\sqrt{b}$

3.  $2\pi/b$

4.  $2\sqrt{\pi}/b$

Question Number : 66 Question Id : 8946582670 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A particle is vibrating in simple harmonic motion with amplitude of 4 cm. At what displacement from the equilibrium position is its energy half potential and half kinetic?

Options :

1. ✘ 1 cm

2. ✘  $\sqrt{2}$  cm

3. ✘ 2 cm

4. ✔  $2\sqrt{2}$  cm

Question Number : 67 Question Id : 8946582671 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

When a star approaches the earth, the waves are shifted towards \_\_\_\_\_

Options :

1. ✘ green colour

2. ✘ yellow colour

3. ✔ blue end

4. ✘ red end

Question Number : 68 Question Id : 8946582672 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0



If a tuning fork of frequency 90 is sounded and moved towards an observer with a velocity equal to one tenth the velocity of sound, then the note heard by the observer will have frequency\_\_\_\_\_.

Options :

1. ✓ 100
2. ✗ 90
3. ✗ 80
4. ✗ 900

Question Number : 69 Question Id : 8946582673 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is the most important factor which helps to recognise a person by his/her voice alone\_\_\_\_\_

Options :

1. ✓ quality
2. ✗ pitch
3. ✗ intensity
4. ✗ quality, pitch and intensity

Question Number : 70 Question Id : 8946582674 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The quality of tone\_\_\_\_\_

Options :

1. ✗ decreases with loudness
2. ✗ varies inversely as amplitude
3. ✗ varies directly as pitch

4. ✓ depends on the overtones present

Question Number : 71 Question Id : 8946582675 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The conduction of heat from hot body to cold body is an example of \_\_\_\_\_.

Options :

1. ✗ reversible process

2. ✓ irreversible process

3. ✗ isothermal process

4. ✗ isobaric process

Question Number : 72 Question Id : 8946582676 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

From the isothermal drawn from Andrews experiment, it can be inferred that \_\_\_\_\_

Options :

1. ✗ CO<sub>2</sub> is a perfect gas

2. ✓ there is continuity of state

3. ✗ there is discontinuity of state

4. ✗ gases like CO<sub>2</sub> and H<sub>2</sub> cannot be liquefied

Question Number : 73 Question Id : 8946582677 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A diesel cycle works at \_\_\_\_\_

Options :

1. ✗ constant volume

2. ✓ constant pressure



3. ✘ constant temperature

4. ✘ both constant volume and constant temperature

Question Number : 74 Question Id : 8946582678 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The transition temperature of most low temperature superconducting elements is in the  
range of \_\_\_\_\_

Options :

1. ✔ zero to 10 k

2. ✘ 10 k to 20 k

3. ✘ 20 k to 50 k

4. ✘ 50 k alone

Question Number : 75 Question Id : 8946582679 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Propagation of light through fiber core is due to \_\_\_\_\_

Options :

1. ✘ diffraction

2. ✘ interference

3. ✔ total internal reflection

4. ✘ reflection

Chemistry

Section Id :

89465854

Section Number :

3

Section type :

Online

Mandatory or Optional:

Mandatory

Number of Questions:

25

Number of Questions to be attempted:

25

Section Marks:	25
Display Number Panel:	Yes
Group All Questions:	No

Sub-Section Number:	1
Sub-Section Id:	89465859
Question Shuffling Allowed :	Yes

Question Number : 76 Question Id : 8946582680 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

Which of the following energy orders is correct?

Options :

1.  $6s < 4f < 5d < 6p$
2.  $4f < 5d < 6s < 6p$
3.  $4f < 6s < 6p < 5d$
4.  $6s < 6p < 5d < 4f$

Question Number : 77 Question Id : 8946582681 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

An element A of atomic number 11 combines with an element B of atomic number 17. The compound formed is \_\_\_\_\_.

Options :

1. Covalent AB
2. Ionic AB
3. Covalent AB<sub>2</sub>
4. Ionic AB<sub>2</sub>

Question Number : 78 Question Id : 8946582682 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

The oxidation number of 'S' in S<sub>8</sub>, S<sub>2</sub>F<sub>2</sub>, H<sub>2</sub>S respectively are \_\_\_\_\_.

Options :

1. ✓ 0, +1 and -2
2. ✗ +2, +1 and -2
3. ✗ 0, +1 and +2
4. ✗ -2, +1 and -2

Question Number : 79 Question Id : 8946582683 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The elements A, B, C and D have the following electronic configurations:

A:  $1S^2, 2S^2, 2P^1$

B:  $1S^2, 2S^2, 2P^6, 3S^2, 3P^1$

C:  $1S^2, 2S^2, 2P^6, 3S^2, 3P^3$

D:  $1S^2, 2S^2, 2P^6, 3S^2, 3P^5$

The elements that belong to same group are \_\_\_\_\_.

Options :

1. ✗ A and C
2. ✗ C and D
3. ✗ A and D
4. ✓ A and B

Question Number : 80 Question Id : 8946582684 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

4.9 gm of  $H_2SO_4$  is present in 2 lit of its solution. The molarity of the solution is

\_\_\_\_\_.

Options :

1. ✘ 0.1 M

2. ✔ 0.025 M

3. ✘ 0.25 M

4. ✘ 0.01 M

Question Number : 81 Question Id : 8946582685 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The molecular weight of  $\text{H}_3\text{PO}_4$  is 98. The equivalent weight is \_\_\_\_\_ gram / equivalents.

Options :

1. ✘ 98

2. ✘ 49

3. ✔ 32.66

4. ✘ 24.5

Question Number : 82 Question Id : 8946582686 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is the Bronsted acid?

Options :

1. ✘  $\text{Cl}^-$

2. ✘  $\text{NH}_2^-$

3. ✘  $\text{CH}_3\text{COO}^-$

4. ✔  $\text{NH}_4^+$

Question Number : 83 Question Id : 8946582687 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The pH of 1 M KOH is \_\_\_\_\_.

Options :

1. ✘ 12

2. ✘ 11

3. ✔ 14

4. ✘ 13

Question Number : 84 Question Id : 8946582688 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Froth floatation process is used for the \_\_\_\_\_.

Options :

1. ✘ Oxide ores

2. ✔ Sulphide ores

3. ✘ Chloride ores

4. ✘ Oxide ores and Chloride ores

Question Number : 85 Question Id : 8946582689 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The composition of brass is \_\_\_\_\_.

Options :

1. ✔ Cu and Zn

2. ✘ Cu and Ni

3. ✘ Cu and Mn

4. ✘ Cu and Fe

Question Number : 86 Question Id : 8946582690 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following statements is correct?

Options :

1. ✘ Cathode is positive terminal in an electrolytic cell
2. ✘ Cathode is negative terminal in a galvanic cell
3. ✔ Reduction occurs at cathode in either of cells
4. ✘ Oxidation occurs at cathode in either of cells

Question Number : 87 Question Id : 8946582691 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In the electrolysis of  $\text{CuCl}_2$  solution using copper electrode, if 2.5 gm of Cu is deposited at cathode, then at anode \_\_\_\_\_.

Options :

1. ✘ 890 mL of  $\text{Cl}_2$  at STP is liberated
2. ✘ 445 mL of  $\text{O}_2$  at STP is liberated
3. ✘ 2.5 gm of copper is deposited
4. ✔ a decrease of 2.5 gm of mass takes place

Question Number : 88 Question Id : 8946582692 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The unit of resistivity is \_\_\_\_\_.

Options :

1. ✘  $\Omega$
2. ✔  $\Omega \text{ m}$

3. ✘  $\Omega / m$

4. ✘  $\Omega m^2$

Question Number : 89 Question Id : 8946582693 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following metals provide cathodic protection to iron?

Options :

1. ✘ Cu and Ni

2. ✔ Al and Zn

3. ✘ Al and Cu

4. ✘ Co and Ni

Question Number : 90 Question Id : 8946582694 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The chemical composition of rust is \_\_\_\_\_.

Options :

1. ✘  $Fe_3O_4$

2. ✘  $Fe_3O_3$

3. ✔  $Fe_2O_3 \cdot nH_2O$

4. ✘  $Fe_3O_3 \cdot xH_2O$

Question Number : 91 Question Id : 8946582695 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

1 ppm of hardness of water is equal to \_\_\_\_\_.

Options :

1. ✔ 1 part of  $CaCO_3$  hardness in  $10^6$  parts of water



2. ✘ 1 part of  $\text{CaCO}_3$  hardness in  $10^8$  parts of water
3. ✘ 1 part of  $\text{CaCO}_3$  hardness in  $10^7$  parts of water
4. ✘ 1 part of  $\text{CaCO}_3$  hardness in  $10^5$  parts of water

Question Number : 92 Question Id : 8946582696 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The temporary hardness of water is due to the presence of \_\_\_\_\_.

Options :

1. ✘  $\text{MgCl}_2$  and  $\text{CaCl}_2$
2. ✘  $\text{Ca}(\text{NO}_3)_2$  and  $\text{Mg}(\text{NO}_3)_2$
3. ✘  $\text{CaSO}_4$  and  $\text{MgSO}_4$
4. ✔  $\text{Ca}(\text{HCO}_3)_2$  and  $\text{Mg}(\text{HCO}_3)_2$

Question Number : 93 Question Id : 8946582697 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The basic buffer solution is a mixture of \_\_\_\_\_.

Options :

1. ✔  $\text{NH}_3 + \text{NH}_4\text{Cl}$
2. ✘  $\text{HCl} + \text{NH}_4\text{Cl}$
3. ✘  $\text{NaCl} + \text{NH}_4\text{Cl}$
4. ✘  $\text{KOH} + \text{NH}_4\text{Cl}$

Question Number : 94 Question Id : 8946582698 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following polymers has amide linkage?

Options :



1. ✘ Terylene
2. ✘ Bakelite
3. ✔ Nylon
4. ✘ PVC

Question Number : 95 Question Id : 8946582699 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The monomer of natural rubber is \_\_\_\_\_.

Options :

1. ✘ Butadiene
2. ✘ Chloroprene
3. ✘ 2-methyl 1,2 butadiene
4. ✔ 2-methyl 1,3 butadiene

Question Number : 96 Question Id : 8946582700 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is a thermo setting?

Options :

1. ✔ Bakelite
2. ✘ Polyethylene
3. ✘ Nylon-6
4. ✘ Natural rubber

Question Number : 97 Question Id : 8946582701 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The composition of water gas is \_\_\_\_\_.

Options :

1. ✓ CO and H<sub>2</sub> are combustible gases and CO<sub>2</sub> and N<sub>2</sub> are non-combustible gases
2. ✗ CO + CO<sub>2</sub> are combustible gases and H<sub>2</sub>O and N<sub>2</sub> non-combustible gases
3. ✗ CO + N<sub>2</sub> are combustible gases and H<sub>2</sub>O and H<sub>2</sub> are non-combustible gases
4. ✗ N<sub>2</sub>+H<sub>2</sub> are combustible gases and CO + H<sub>2</sub>O are non-combustible gases

Question Number : 98 Question Id : 8946582702 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Earth is protected from UV radiation by \_\_\_\_\_.

Options :

1. ✗ Nitrogen layer
2. ✓ Ozone layer
3. ✗ Carbon dioxide layer
4. ✗ Oxygen layer

Question Number : 99 Question Id : 8946582703 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of following statements is not correct?

Options :

1. ✗ CO is the main air pollutant
2. ✗ All pollutants are not wastes
3. ✓ Water is polluted by dissolved Oxygen
4. ✗ Lichens are pollution indicators

Question Number : 100 Question Id : 8946582704 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Minamata disease is caused due to the presence of \_\_\_\_\_.

Options :

1. ✘ Cd
2. ✘ Pb
3. ✘ As
4. ✔ Hg

Electronics and Communication Engineering

Section Id :	89465855
Section Number :	4
Section type :	Online
Mandatory or Optional:	Mandatory
Number of Questions:	100
Number of Questions to be attempted:	100
Section Marks:	100
Display Number Panel:	Yes
Group All Questions:	No

Sub-Section Number:	1
Sub-Section Id:	89465860
Question Shuffling Allowed :	Yes

Question Number : 101 Question Id : 8946582705 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

The capacitance of a reverse-biased PN-junction \_\_\_\_\_.

Options :

1. ✘ makes the PN junction more effective at high frequencies
2. ✔ increases as the reverse bias is decreased
3. ✘ depends mainly on the reverse saturation current
4. ✘ increases as the reverse bias is increased

Question Number : 102 Question Id : 8946582706 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

The signal handling capacity of an amplifier is high if \_\_\_\_\_

Options :

1. ✘ the operating point is selected near the cut-off region
2. ✔ the operating point is selected in the middle of the active region
3. ✘ the operating point is selected near the saturation region
4. ✘ the operating point is on either end of the load line

Question Number : 103 Question Id : 8946582707 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The output voltage waveform in CE amplifier is \_\_\_\_\_ with input voltage wave form.

Options :

1. ✘ in phase
2. ✔ out of phase by  $180^{\circ}$
3. ✘ out of phase by  $90^{\circ}$
4. ✘ out of phase by  $270^{\circ}$

Question Number : 104 Question Id : 8946582708 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A radio-frequency signal contains three frequencies as 870 kHz, 875 kHz and 880 kHz. These signals need to be amplified. The amplifier used should be \_\_\_\_\_.

Options :

1. ✘ audio-frequency amplifier
2. ✘ wide-band amplifier
3. ✔ tuned voltage amplifier

#### 4. ✘ push-pull amplifier

Question Number : 105 Question Id : 8946582709 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The voltage gain of an amplifier is 100. On applying negative feedback with  $\beta = 0.03$ , its gain will reduce to \_\_\_\_\_.

Options :

1. ✘ 3
2. ✘ 33.33
3. ✘ 99.97
4. ✔ 25

Question Number : 106 Question Id : 8946582710 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The relationship between sweep error ( $e_s$ ), displacement error ( $e_d$ ) and transmission error ( $e_t$ ) in sweep circuit is \_\_\_\_\_.

Options :

1. ✔  $e_s = 2e_t = 8e_d$
2. ✘  $e_s = e_t = e_d$
3. ✘  $2e_s = 2e_t = 4e_d$
4. ✘  $2e_s = 2e_t = e_d$

Question Number : 107 Question Id : 8946582711 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The figure of merit for the diode clipper is \_\_\_\_\_.

Options :



1. ✘  $R_f/R_r$

2. ✔  $R_r/R_f$

3. ✘  $R_f + R_r$

4. ✘  $R_r - R_f$

Question Number : 108 Question Id : 8946582712 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

The UJT is \_\_\_\_\_.

Options :

1. ✔ current controlled negative resistance device

2. ✘ voltage controlled negative resistance device

3. ✘ current controlled current source

4. ✘ voltage controlled current source

Question Number : 109 Question Id : 8946582713 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

The unit for mobility of the electron is \_\_\_\_\_

Options :

1. ✔ Square meter per volt-second

2. ✘ Volt per meter-ohm

3. ✘ Ohm-meter per volt

4. ✘ Volt per ohm-meter

Question Number : 110 Question Id : 8946582714 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

The main component responsible for the fall of gain of an RC-coupled amplifier in low-frequency range is \_\_\_\_\_.

Options :

1. ✘ stray shunt capacitance
2. ✘ the active device itself
3. ✔ coupling capacitor
4. ✘ load resistor

Question Number : 111 Question Id : 8946582715 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The network consisting of linear resistors and ideal voltage sources, if the value of resistors are doubled, then voltage across each resistor \_\_\_\_\_.

Options :

1. ✘ increases four times
2. ✔ remains unchanged
3. ✘ doubled
4. ✘ halved

Question Number : 112 Question Id : 8946582716 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Determine the current, if a 20 coulomb charge passes from a point in 0.25 seconds \_\_\_\_\_

Options :

1. ✘ 10 A
2. ✘ 20 A
3. ✘ 2 A



4. ✓ 80 A

Question Number : 113 Question Id : 8946582717 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A network is said to be reciprocal, if it satisfies the condition \_\_\_\_\_

Options :

1. ✗  $Z_{11} = Z_{22}$

2. ✓  $Z_{12} = Z_{21}$

3. ✗  $Z_{11} = Z_{12} = 0$

4. ✗  $Y_{11} = Y_{22}$

Question Number : 114 Question Id : 8946582718 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Q factor of a coil in series resonance is \_\_\_\_\_.

Options :

1. ✗  $1/\omega_0 RL$

2. ✗  $\omega_0 R/L$

3. ✗  $\omega_0 RL$

4. ✓  $\omega_0 L/R$

Question Number : 115 Question Id : 8946582719 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If both roots of second order differential equation for a series RLC circuit are real and equal, then the oscillations are \_\_\_\_\_.

Options :

1. ✗ un damped

2. ✗ under damped

3. ✘ over damped

4. ✔ critically damped

Question Number : 116 Question Id : 8946582720 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The imaginary part of the complex frequency is called as a/an \_\_\_\_\_.

Options :

1. ✘ angular frequency

2. ✘ sampling frequency

3. ✘ neper frequency

4. ✔ radian frequency

Question Number : 117 Question Id : 8946582721 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The number of branches incident at the node of a graph is called as the \_\_\_\_\_.

Options :

1. ✔ degree of the node

2. ✘ order of the node

3. ✘ status of the node

4. ✘ number of the node

Question Number : 118 Question Id : 8946582722 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If the resistors of star connected system are  $R_1, R_2, R_3$ , then the resistance between 2 and 3 in delta connected system will be \_\_\_\_\_.

Options :

1. ✘  $(R_1R_2 + R_2R_3 + R_3R_1)/R_3$

2. ✘  $(R_1R_2 + R_2R_3 + R_3R_1)/R_2$

3. ✔  $(R_1R_2 + R_2R_3 + R_3R_1)/R_1$

4. ✘  $(R_1R_2 + R_2R_3 + R_3R_1)/(R_3 + R_2)$

Question Number : 119 Question Id : 8946582723 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The matrix formed by link branches of a tie set matrix is \_\_\_\_\_.

Options :

1. ✘ Row matrix

2. ✘ Column matrix

3. ✘ Diagonal matrix

4. ✔ Identity matrix

Question Number : 120 Question Id : 8946582724 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is the range of phase variation for reflection coefficient in the transmission lines?

Options :

1. ✘  $0^\circ$  to  $90^\circ$

2. ✘  $90^\circ$  to  $150^\circ$

3. ✔  $0^\circ$  to  $180^\circ$

4. ✘  $90^\circ$  to  $360^\circ$

Question Number : 121 Question Id : 8946582725 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Resistances can be measured with the help of \_\_\_\_\_

Options :

1. ✘ voltmeters
2. ✘ wattmeters
3. ✘ ammeters
4. ✔ ohmmeters and resistance bridges

Question Number : 122 Question Id : 8946582726 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Digital voltmeters can be used to measure \_\_\_\_\_

Options :

1. ✔ voltage only
2. ✘ voltage, current and resistance
3. ✘ voltage and current
4. ✘ voltage and resistance

Question Number : 123 Question Id : 8946582727 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The SYNC control in CRO is used to \_\_\_\_\_

Options :

1. ✘ change the brightness of the beam
2. ✘ change the contrast of the beam CRO
3. ✔ lock the input signal being viewed
4. ✘ adjust the range of frequency

Question Number : 124 Question Id : 8946582728 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following units is used to express sensitivity of an analog voltmeter?

Options :

1. ✘ ohms
2. ✘ voltage
3. ✘ no unit
4. ✔ ohms per volt

Question Number : 125 Question Id : 8946582729 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Basic building blocks of digital multimeter are \_\_\_\_\_

Options :

1. ✘ Oscillator and amplifier
2. ✘ Diode and Op-Amp
3. ✘ Rectifier and Schmitt trigger
4. ✔ ADC, attenuator and counter

Question Number : 126 Question Id : 8946582730 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is the effect of heat on the resistances in a Wheatstone bridge?

Options :

1. ✘ no effect
2. ✘ increases the voltage drop across the circuit
3. ✘ decreases the current flowing through the circuit
4. ✔ causes a permanent change in the resistance values

Question Number : 127 Question Id : 8946582731 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical



Correct Marks : 1 Wrong Marks : 0

Which of the following measurement instruments does not have eddy current damping?

Options :

1. ✓ repulsion type instrument
2. ✓ true RMS volt meter
3. ✓ moving iron instrument
4. ✗ moving coil instrument

Note: For this question, ambiguity is found in question/answer. Candidate will get full marks for this question if any of the correct options are chosen.

Question Number : 128 Question Id : 8946582732 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The error of an instrument is normally given as a percentage of \_\_\_\_\_.

Options :

1. ✓ full – scale value
2. ✗ measured value
3. ✗ mean value
4. ✗ RMS value

Question Number : 129 Question Id : 8946582733 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is not an LC oscillator?

Options :

1. ✗ Hartley Oscillator
2. ✗ Colpitts oscillator
3. ✓ Crystal oscillator
4. ✗ Clapp oscillator

Question Number : 130 Question Id : 8946582734 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A practical Q meter consists of \_\_\_\_\_

Options :

1. ✘ Wien bridge oscillator
2. ✘ AF oscillator
3. ✔ RF oscillator
4. ✘ Crystal oscillator

Question Number : 131 Question Id : 8946582735 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is not a basic data type in C language?

Options :

1. ✘ float
2. ✘ int
3. ✔ real
4. ✘ char

Question Number : 132 Question Id : 8946582736 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The program written by the programmer in high level language is called \_\_\_\_\_

Options :

1. ✘ object Program
2. ✔ source Program
3. ✘ assembled Program
4. ✘ compiled Program



Question Number : 133 Question Id : 8946582737 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of these values is not valid as an AUTO\_INCREMENT value?

Options :

1. ✓ 0

2. ✗ 1

3. ✗ 2

4. ✗ 3

Question Number : 134 Question Id : 8946582738 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which function definition will run correctly?

Options :

int sum(int a, int b)

1. ✗ return (a+b)

int sum(int a, int b)

2. ✓ {return (a + b);}

int sum(a, b)

3. ✗ return (a + b);

int (real a, real b)

4. ✗ return (a + b);

Question Number : 135 Question Id : 8946582739 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

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 : 136 Question Id : 8946582740 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

Which of the following concepts make extensive use of arrays?

Options :

1.  binary trees
2.  scheduling of processes
3.  caching
4.  spatial locality

Question Number : 137 Question Id : 8946582741 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

In C, if you pass an array as an argument to a function, what does actually get passed?

Options :

1.  value of elements in array
2.  first element of the array
3.  base address of the array
4.  address of the last element of array

Question Number : 138 Question Id : 8946582742 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

If the cathode of an SCR is made positive with respect to the anode and gate current is not applied, then \_\_\_\_\_.

Options :

1. ✘ all the junctions are reverse biased
2. ✘ all the junctions are forward biased
3. ✔ only the middle junction is forward biased
4. ✘ only the middle junction is reverse biased

Question Number : 139 Question Id : 8946582743 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In a power transistor, \_\_\_\_\_ is the controlled parameter.

Options :

1. ✘  $V_{BE}$
2. ✘  $V_{CE}$
3. ✘  $I_B$
4. ✔  $I_C$

Question Number : 140 Question Id : 8946582744 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The power rating of a BJT is determined by which of the following ?

Options :

1. ✔ collector base area
2. ✘ base width
3. ✘ heat sink
4. ✘ emitter base junction area

Question Number : 141 Question Id : 8946582745 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In single phase induction motor the net torque experienced by the rotor at starting is \_\_\_\_\_.

Options :

1. ✘ high
2. ✘ low
3. ✘ average
4. ✔ zero

Question Number : 142 Question Id : 8946582746 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What are the names of the windings used in the split phase starting?

Options :

1. ✘ main winding and running winding
2. ✘ auxiliary windings
3. ✔ main winding and starting winding
4. ✘ starting and auxiliary windings

Question Number : 143 Question Id : 8946582747 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In a transformer, which of the following windings has got more cross-sectional area?

Options :

1. ✔ copper winding
2. ✘ steel winding
3. ✘ aluminium winding

4. ✘ iron winding

Question Number : 144 Question Id : 8946582748 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

The capability of convention relay systems for complex operations is \_\_\_\_\_ that of the PLCs.

Options :

1. ✔ poorer than
2. ✘ better than
3. ✘ as good as
4. ✘ unpredictable as

Question Number : 145 Question Id : 8946582749 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

In the following statements which is not an advantage of an open loop system?

Options :

1. ✘ simplicity in construction and design
2. ✘ easy maintenance
3. ✘ rare problems of stability
4. ✔ recalibration from time to time

Question Number : 146 Question Id : 8946582750 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

Find the efficiency  $\eta$  of ordinary AM for 50 percent modulation?

Options :

1. ✘ 33.3%



2. ✓ 12.5%

3. ✗ 22.2%

4. ✗ 66.6%

Question Number : 147 Question Id : 8946582751 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following antennas is used for TV transmission?

Options :

1. ✗ Helical antenna

2. ✗ Yagi-uda antenna

3. ✓ Turnstile antenna

4. ✗ Loop antenna

Question Number : 148 Question Id : 8946582752 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The product of rise time and 3-dB bandwidth of the low-pass RC filter is \_\_\_\_\_

Options :

1. ✓ 0.35

2. ✗ 0.707

3. ✗ 22.7

4. ✗ 1

Question Number : 149 Question Id : 8946582753 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Find the instantaneous frequency in hertz for the given signal  $10 \cos\left(200\pi t + \frac{\pi}{3}\right)$  ?

Options :

1. ✘ 200 Hz
2. ✘  $200\pi$  Hz
3. ✘ 2000 Hz
4. ✔ 100 Hz

Question Number : 150 Question Id : 8946582754 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Consider an angle-modulated signal

$$S(t) = 10 \cos[(10^8)\pi t + 5 \sin 2\pi(10^3)t]$$

Find the maximum frequency deviation?

Options :

1. ✘ 10 kHz
2. ✔ 5 kHz
3. ✘ 50 MHz
4. ✘ 1 kHz

Question Number : 151 Question Id : 8946582755 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A carrier is frequency-modulated with a sinusoidal signal of 2 kHz, resulting in a maximum frequency deviation of 5 kHz. Find the bandwidth of the modulated signal?

Options :

1. ✔ 14 kHz
2. ✘ 10 kHz
3. ✘ 3 kHz



4. ✘ 7 kHz

Question Number : 152 Question Id : 8946582756 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Find the Nyquist sampling rate for the given signal  $5 \cos(1000\pi t) \cos(4000\pi t)$ ?

Options :

1. ✘ 2 kHz

2. ✘ 500 Hz

3. ✘ 2.5 kHz

4. ✔ 5 kHz

Question Number : 153 Question Id : 8946582757 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Two analog signals  $m_1(t)$  and  $m_2(t)$  are to be transmitted over a common channel by means of time-division multiplexing. The highest frequency of  $m_1(t)$  is 4 kHz and that of  $m_2(t)$  is 4.5 kHz. What is the minimum value of the permissible sampling rate?

Options :

1. ✘ 4000 samples/s

2. ✘ 4500 samples/s

3. ✘ 8000 samples/s

4. ✔ 9000 samples/s

Question Number : 154 Question Id : 8946582758 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The function of the quartz delay line in an MTI radar is to \_\_\_\_\_

Options :

1. ✘ delay a sweep so that the next sweep can be subtracted from it
2. ✘ match the phase of the coho and the output oscillator
3. ✘ match the phase of the coho and the stalo
4. ✔ help in subtracting a complete scan from the previous scan

Question Number : 155 Question Id : 8946582759 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

The IF bandwidth of a radar receiver is inversely proportional to the\_\_\_\_\_

Options :

1. ✘ pulse interval
2. ✘ square root of the peak transmitted power
3. ✔ pulse width
4. ✘ pulse repetition frequency

Question Number : 156 Question Id : 8946582760 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

To separate channels in an FDM receiver, it is necessary to use\_\_\_\_\_

Options :

1. ✘ differentiation
2. ✘ AND gate
3. ✘ integration
4. ✔ band pass filters

Question Number : 157 Question Id : 8946582761 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

A super heterodyne receiver with an IF of 450 kHz is tuned to a signal at 1000 kHz. The image frequency is \_\_\_\_\_ .

Options :

1. ✘ 1000 kHz
2. ✘ 450 kHz
3. ✔ 1900 kHz
4. ✘ 1550 kHz

Question Number : 158 Question Id : 8946582762 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If an 8-level encoding scheme is used in a 10 kHz bandwidth system, then the channel capacity is \_\_\_\_\_ bits/s.

Options :

1. ✔ 60,000
2. ✘ 30,000
3. ✘ 80,000
4. ✘ 20,000

Question Number : 159 Question Id : 8946582763 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The most popular satellite frequency range is 4 to 6 GHz and is called the \_\_\_\_\_ band.

Options :

1. ✘ Ku
2. ✘ X
3. ✔ C

4. ✘ S

Question Number : 160 Question Id : 8946582764 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A circular orbit around the equator with a 24-h period is called as a/an \_\_\_\_\_.

Options :

1. ✘ elliptical orbit
2. ✔ geostationary orbit
3. ✘ polar orbit
4. ✘ transfer orbit

Question Number : 161 Question Id : 8946582765 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The acronym VCO means \_\_\_\_\_

Options :

1. ✘ variable crystal oscillator
2. ✘ variable capacitor oscillator
3. ✘ voltage constant oscillator
4. ✔ voltage controlled oscillator

Question Number : 162 Question Id : 8946582766 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Given the single-tone FM signal:  $S(t) = 20 \cos[(2\pi 10^6 t) + 2 \sin(2\pi 10^4 t)]$ .

What is the bandwidth using Carson's rule?

Options :

1. ✘ 20 kHz

2. ✓ 60 kHz

3. ✗ 40 kHz

4. ✗ 10 kHz

Question Number : 163 Question Id : 8946582767 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Given the angle-modulated signal:  $10 \cos[\omega_c t + 2 \sin(2000\pi t)]$ . Find the average transmitted power?

Options :

1. ✗ 100 W

2. ✗ 20 W

3. ✓ 50 W

4. ✗ 10 W

Question Number : 164 Question Id : 8946582768 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The horizontal radiation pattern of a dipole is a \_\_\_\_\_

Options :

1. ✗ clover leaf

2. ✗ narrow beam

3. ✓ figure eight

4. ✗ circle

Question Number : 165 Question Id : 8946582769 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0



During an eclipse, the satellite is powered by \_\_\_\_\_

Options :

1. ✓ batteries
2. ✗ solar panels
3. ✗ jet engine
4. ✗ motors

Question Number : 166 Question Id : 8946582770 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If  $(292)_{10} = (204)_b$ , then the possible base b is \_\_\_\_\_

Options :

1. ✗ 8
2. ✓ 12
3. ✗ 14
4. ✗ 16

Question Number : 167 Question Id : 8946582771 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

De Morgan's theorem states that \_\_\_\_\_

Options :

1. ✓  $\overline{A + B} = \bar{A} \cdot \bar{B}$  and  $\overline{AB} = \bar{A} + \bar{B}$
2. ✗  $\overline{A + B} = \bar{A} + \bar{B}$  and  $\overline{AB} = \bar{A} \bar{B}$
3. ✗  $\overline{A + B} = A + B$  and  $\overline{AB} = AB$
4. ✗  $\overline{A + B} = \bar{A} \bar{B}$  and  $\overline{AB} = \bar{A} \bar{B}$

Question Number : 168 Question Id : 8946582772 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

How many full-adders are required to construct an N-bit parallel adder?

Options :

1. ✘  $N/2$

2. ✘  $N-1$

3. ✔  $N$

4. ✘  $N+1$

Question Number : 169 Question Id : 8946582773 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The number of 2-to-4 line decoders required to construct a 3-to-8 line decoder is \_\_\_\_\_.

Options :

1. ✘ 1

2. ✔ 2

3. ✘ 3

4. ✘ 4

Question Number : 170 Question Id : 8946582774 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is the minimum number of NAND gates required to realize an XOR gate?

Options :

1. ✘ 3

2. ✔ 4

3. ✘ 5



4. ✘ 6

Question Number : 171 Question Id : 8946582775 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

The race around condition occurs in a J-K flip-flop when \_\_\_\_\_.

Options :

1. ✘ both inputs are 0
2. ✘ the inputs are complementary
3. ✔ both inputs are 1
4. ✘ both inputs are high impedance

Question Number : 172 Question Id : 8946582776 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

The minimum number of flip-flops required for a Mod-12 ripple counter is \_\_\_\_\_.

Options :

1. ✘ 3
2. ✔ 4
3. ✘ 6
4. ✘ 12

Question Number : 173 Question Id : 8946582777 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

The logic family which consumes least power is \_\_\_\_\_

Options :

1. ✘ TTL
2. ✘ ECL

3. ✓ CMOS

4. ✗ IIL

Question Number : 174 Question Id : 8946582778 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The non-volatile memory is \_\_\_\_\_.

Options :

1. ✗ RAM

2. ✗ DRAM

3. ✗ Cache memory

4. ✓ ROM

Question Number : 175 Question Id : 8946582779 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The ADC used in digital voltmeters and multimeters is \_\_\_\_\_.

Options :

1. ✗ counter – type

2. ✗ flash type

3. ✓ successive–approximation type

4. ✓ dual-slope type

Note: For this question, ambiguity is found in question/answer. Candidate will get full marks for this question if any of the correct options are chosen.

Question Number : 176 Question Id : 8946582780 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The addressing capacity of an 8085 microprocessor is \_\_\_\_\_.

Options :

1. ✓ 64 KB

2. ✘ 32 KB

3. ✘ 64 MB

4. ✘ 64 Bytes

Question Number : 177 Question Id : 8946582781 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The Priority order of 8085 interrupts are \_\_\_\_\_.

Options :

1. ✘ RST 5.5, RST 6.5, RST 7.5

2. ✔ RST 7.5, RST6.5, RST5.5

3. ✘ RST6.5, RST 7.5, RST 5.5

4. ✘ RST 7.5,RST 5.5,RST6.5

Question Number : 178 Question Id : 8946582782 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If LXI H, 8054H

LXI B,1276H

DAD B

HLT

What is the result of execution of above piece of code?

Options :

1. ✘ HL = 92BA

2. ✔ BC = 92CA

3. ✘ HL = 9330

4. ✘ BC = 9330

Question Number : 179 Question Id : 8946582783 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The BSR mode control word of 8255 is used \_\_\_\_\_.

Options :

1. ✘ to set port C bits

2. ✘ to reset port C bits

3. ✔ to set and reset port C bits

4. ✘ to set or reset port A bit

Question Number : 180 Question Id : 8946582784 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

RS-232 standard is related to \_\_\_\_\_.

Options :

1. ✔ serial communication

2. ✘ parallel communication

3. ✘ interrupts

4. ✘ memory

Question Number : 181 Question Id : 8946582785 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The 8051 microcontroller Architecture is \_\_\_\_\_.

Options :

1. ✘ Von Neumann

2. ✘ Princeton
3. ✔ Harvard
4. ✘ Super scalar

Question Number : 182 Question Id : 8946582786 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

One machine cycle of 8051 takes \_\_\_\_\_.

Options :

1. ✔ 12 clock cycles
2. ✘ 6 clock cycles
3. ✘ 4 clock cycles
4. ✘ 20 clock cycles

Question Number : 183 Question Id : 8946582787 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

How many modes of operations are there for ports in 8255 PPI?

Options :

1. ✘ 1
2. ✘ 2
3. ✔ 3
4. ✘ 4

Question Number : 184 Question Id : 8946582788 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical  
Correct Marks : 1 Wrong Marks : 0

Which of the following is used to program and control the operation of IC 8259?

Options :

1. ✘ WR
2. ✔ IMR
3. ✘ INT
4. ✘ RXD

Question Number : 185 Question Id : 8946582789 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

PIC 16F877 on chip program memory size is \_\_\_\_\_.

Options :

1. ✔ 8Kx14 flash type
2. ✘ 8Kx14 EPROM type
3. ✘ 8Kx8 Flash type
4. ✘ 8Kx8 EPROM

Question Number : 186 Question Id : 8946582790 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In the 625-B monochrome TV system, the number of scanning lines per field is \_\_\_\_\_.

Options :

1. ✘ 625
2. ✔ 312.5
3. ✘ 311.5
4. ✘ 300

Question Number : 187 Question Id : 8946582791 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0



In 525 American monochrome TV system, the duration of front porch is \_\_\_\_\_.

Options :

1. ✓  $1.27\mu\text{s}$
2. ✗  $4.7\mu\text{s}$
3. ✗  $5.7\mu\text{s}$
4. ✗  $2.0\mu\text{s}$

Question Number : 188 Question Id : 8946582792 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In NTSC color TV system, the I and Q signals differ in phase by \_\_\_\_\_.

Options :

1. ✗  $0^{\circ}$
2. ✓  $90^{\circ}$
3. ✗  $180^{\circ}$
4. ✗  $270^{\circ}$

Question Number : 189 Question Id : 8946582793 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In PAL color TV system, on modulation, the color difference signals are allowed with a bandwidth of \_\_\_\_\_.

Options :

1. ✗ 0.5 MHz
2. ✗ 1 MHz
3. ✓ 1.3 MHz

4. ✘ 1.6 MHz

Question Number : 190 Question Id : 8946582794 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In SECAM color TV system, which modulation is used to encode chrominance signal?

Options :

1. ✘ amplitude

2. ✘ angle

3. ✔ frequency

4. ✘ pulse

Question Number : 191 Question Id : 8946582795 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In asynchronous serial communication, the physical layer provides\_\_\_\_\_.

Options :

1. ✔ start and stop signalling

2. ✘ congestion control

3. ✘ error control

4. ✘ connection control

Question Number : 192 Question Id : 8946582796 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Wireless transmission can be done via\_\_\_\_\_.

Options :

1. ✔ radio waves

2. ✘ coaxial cables

3. ✘ twister pair

4. ✘ optical fibre

Question Number : 193 Question Id : 8946582797 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Bluetooth is the wireless technology for \_\_\_\_\_.

Options :

1. ✘ local area network

2. ✔ personal area network

3. ✘ metropolitan area network

4. ✘ wide area network

Question Number : 194 Question Id : 8946582798 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following allows the client to update his/her DNS entry as his/her IP address changes?

Options :

1. ✔ dynamic DNS

2. ✘ mail transfer agent

3. ✘ authoritative name server

4. ✘ SMTP

Question Number : 195 Question Id : 8946582799 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which multiple access technique is used by IEEE 802.11 standard for wireless LAN?

Options :

1. ✘ CDMA
2. ✔ CSMA/CA
3. ✘ ALOHA
4. ✘ GSM

Question Number : 196 Question Id : 8946582800 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A proxy server keeps copies of responses to\_\_\_\_\_.

Options :

1. ✘ current requests
2. ✔ recent requests
3. ✘ pending requests
4. ✘ received requests

Question Number : 197 Question Id : 8946582801 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

How many OSI layers are covered in the X.25 standard?

Options :

1. ✔ three
2. ✘ four
3. ✘ Two
4. ✘ seven

Question Number : 198 Question Id : 8946582802 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Bank's ATM facility is an example of \_\_\_\_\_.

Options :

1. ✘ LAN
2. ✔ WAN
3. ✘ Mixed networking
4. ✘ Multipurpose networking

Question Number : 199 Question Id : 8946582803 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Frames from one LAN can be transmitted to another LAN via the device \_\_\_\_\_.

Options :

1. ✘ router
2. ✔ bridge
3. ✘ repeater
4. ✘ modem

Question Number : 200 Question Id : 8946582804 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes  
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

When a router cannot route a datagram, datagram is discarded and sends a message to source i.e., \_\_\_\_\_.

Options :

1. ✔ destination unreachable
2. ✘ destination unverified
3. ✘ destination unavailable

4. ✖ destination no-entry