

# Question Paper Preview

## Notations :

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

<b>Question Paper Name :</b>	Electronics and Instrumentation Engineering 31st Aug 2020 Shift 1 SET 2
<b>Subject Name :</b>	Electronics and Instrumentation Engineering
<b>Creation Date :</b>	2020-08-31 17:38:57
<b>Duration :</b>	180
<b>Total Marks :</b>	200
<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>	Yes

## Electronics and Instrumentation Engineering

<b>Group Number :</b>	1
<b>Group Id :</b>	76439062
<b>Group Maximum Duration :</b>	0
<b>Group Minimum Duration :</b>	180
<b>Show Attended Group? :</b>	No
<b>Edit Attended Group? :</b>	No
<b>Break time :</b>	0
<b>Group Marks :</b>	200
<b>Is this Group for Examiner? :</b>	No

## Mathematics

<b>Section Id :</b>	764390239
<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>	Yes
<b>Mark As Answered Required? :</b>	Yes
<b>Sub-Section Number :</b>	1
<b>Sub-Section Id :</b>	764390269
<b>Question Shuffling Allowed :</b>	Yes

Question Number : 1 Question Id : 76439012225 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If  $P = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 0 & 1 & 2 \end{bmatrix} = A + B$ , where A is symmetric and B is skew symmetric, then  $B =$

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

Options :

76439048801.  $\begin{bmatrix} 2 & 4 & 3 \\ -4 & 6 & 5 \\ -3 & -5 & 4 \end{bmatrix}$

76439048802.  $\begin{bmatrix} 0 & 0 & 3 \\ 4 & 0 & 3 \\ -3 & -3 & 0 \end{bmatrix}$

76439048803.  $\begin{bmatrix} 2 & 3 & 1 \\ -3 & 6 & 5 \\ -1 & -5 & 4 \end{bmatrix}$

76439048804.  $\begin{bmatrix} 1 & 1 & 1 \\ -1 & 0 & 1 \\ -1 & -1 & 0 \end{bmatrix}$

Question Number : 2 Question Id : 76439012226 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Let  $A = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 0 & 1 & 2 \end{bmatrix}$ ,  $C = \begin{bmatrix} 3 & 0 & 0 \\ 0 & 3 & 0 \\ 0 & 0 & 3 \end{bmatrix}$ ,  $E = \begin{bmatrix} 0 & 1 & 6 \\ -1 & 0 & 8 \\ -6 & -8 & 0 \end{bmatrix}$ ,  $F = \begin{bmatrix} 1 & 6 & 0 \\ 8 & 0 & -8 \\ 0 & -6 & -1 \end{bmatrix}$ . The non skew

symmetric matrix having rank 2 is

Options :

76439048805. ✖ E

76439048806. ✓ F

76439048807. ✓ A

76439048808. ✗ C

**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 : 3 Question Id : 76439012227 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 1 Wrong Marks : 0**

If  $A = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 0 & 1 & 2 \end{bmatrix}$ ,  $B = \begin{bmatrix} 1 & w & w^2 \\ w & w^2 & 1 \\ w^2 & 1 & w \end{bmatrix}$ , where  $w$  is complex cube root of unity,

$C = \begin{bmatrix} 3 & 0 & 0 \\ 0 & 3 & 0 \\ 0 & 0 & 3 \end{bmatrix}$ ,  $D = \begin{bmatrix} 0 & 0 & 3 \\ 0 & 3 & 0 \\ 3 & 0 & 0 \end{bmatrix}$ , then the matrix having rank 1 is

**Options :**

76439048809. ✗ A

76439048810. ✗ D

76439048811. ✓ B

76439048812. ✗ C

**Question Number : 4 Question Id : 76439012228 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

**Correct Marks : 1 Wrong Marks : 0**

If  $A = (a_{ij})_{3 \times 3}$  is a real skew symmetric matrix, then  $a_{11} + a_{22} + a_{33} + |A| =$

**Options :**

76439048813. ✓ 0

76439048814. ✗ 1

76439048815. ✗ 3

76439048816. ✗ 4

Question Number : 5 Question Id : 76439012229 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

$$\text{If } \frac{x^2 + 13x + 15}{(2x + 3)(x + 3)^2} = \frac{A}{2x + 3} + \frac{B}{x + 3} + \frac{C}{(x + 3)^2} \text{ then } 6A + 9B + 2C =$$

Options :

76439048817. ✖ 0

76439048818. ✖ 1

76439048819. ✔ 13

76439048820. ✖ 15

Question Number : 6 Question Id : 76439012230 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

$$\text{If } \log_{10} k = A \text{ then } \log_{10} \left( \frac{1}{10k} \right) \text{ is equal to}$$

Options :

76439048821. ✔  $-(A + 1)$

76439048822. ✖  $(A + 10)$

76439048823. ✖  $(A + k)$

76439048824. ✖  $(A + 10k)$

Question Number : 7 Question Id : 76439012231 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

$$\sin^2 10^\circ + \sin^2 20^\circ + \sin^2 30^\circ + \dots + \sin^2 80^\circ + \sin^2 90^\circ =$$

Options :

76439048825. ✖ 0

76439048826. ✖ 2

76439048827. ✖ 4



76439048828. ✓ 5

Question Number : 8 Question Id : 76439012232 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Assertion(A):  $\tan 6^\circ \tan 42^\circ \tan 66^\circ \tan 78^\circ = 1$ .

Reasoning(R): If  $3A$  is not an odd multiple of  $\pi/2$  then,

$$\tan A \cdot \tan(60^\circ + A) \tan(60^\circ - A) = \tan 3A$$

Options :

76439048829. ✓ A is true, R is true and R is correct explanation of A

76439048830. ✗ A is true, R is true and R is not correct explanation of A

76439048831. ✗ A is true, R is false

76439048832. ✗ A is false, R is true

Question Number : 9 Question Id : 76439012233 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If  $\theta_1, \theta_2$  are solutions of the equation  $\cos 2\theta + 2 \sin 2\theta = 3$ ,  $\tan \theta_1 \neq \tan \theta_2$ , then  $\cot \theta_1 \cdot \cot \theta_2 =$

Options :

76439048833. ✗ 0

76439048834. ✗  $1/2$

76439048835. ✗ 1

76439048836. ✓ 2

Question Number : 10 Question Id : 76439012234 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If  $\tan^{-1} \left( \frac{1-x}{1+x} \right) = \frac{1}{2} \tan^{-1} x$ , then the value of  $x$  is

Options :

76439048837. ✗ 0

76439048838. ✓  $1/\sqrt{3}$

76439048839. ✗  $\sqrt{3}$

76439048840. ✗ 2

Question Number : 11 Question Id : 76439012235 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If  $\sinh^3 x - \cosh^3 x = \frac{Ke^x - e^{Kx}}{1 - K}$ , then  $K =$

Options :

76439048841. ✗ -4

76439048842. ✓ -3

76439048843. ✗ 3

76439048844. ✗ 4

Question Number : 12 Question Id : 76439012236 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If in a  $\Delta ABC$ , with usual notation  $(a-b)(S-c) = (b-c)(S-a)$ , then

Options :

76439048845. ✗  $r_1, r_2, r_3$  are in GP.

76439048846. ✗  $a, b, c$  are in AP.

76439048847. ✓  $r_1, r_2, r_3$  are in AP.

76439048848. ✗  $a, b, c$  are in GP.

Question Number : 13 Question Id : 76439012237 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Consider a triangle ABC and its incircle. Let  $2S$  be the perimeter of the triangle. Let D, E, F be the points of contact of the incircle with the triangle. Suppose D, E, F lie on AB, BC and CA respectively, then  $AD+BE+CF =$

Options :

76439048849. ✖  $S/2$

76439048850. ✖  $S/3$

76439048851. ✔  $S$

76439048852. ✖  $2S$

Question Number : 14 Question Id : 76439012238 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If  $\sin \alpha + \sin \beta + \sin \gamma = 3$ , then the value of  $\tan \frac{\alpha}{2} + \tan \frac{\beta}{2} + \tan \frac{\gamma}{2}$  is

Options :

76439048853. ✖  $3/2$

76439048854. ✖  $2$

76439048855. ✖  $5/2$

76439048856. ✔  $3$

Question Number : 15 Question Id : 76439012239 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

$$\operatorname{cis} \frac{\pi}{5} \operatorname{cis} \frac{\pi}{10} \operatorname{cis} \frac{3\pi}{10} \operatorname{cis} \frac{4\pi}{10} =$$

Options :

76439048857. ✔  $-1$

76439048858. ✖  $0$

76439048859. ✖  $1$

76439048860. ✖  $4$

Question Number : 16 Question Id : 76439012240 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The complex number  $\frac{2-i}{(1-2i)^2}$  lies in the

Options :

76439048861. ✖ first quadrant

76439048862. ✔ second quadrant

76439048863. ✖ third quadrant

76439048864. ✖ fourth quadrant

Question Number : 17 Question Id : 76439012241 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The equation of the circle whose ends of a diameter are (1,2) and (5,2) is

Options :

76439048865. ✔  $x^2 + y^2 - 6x - 4y + 9 = 0$

76439048866. ✖  $x^2 + y^2 + 6x - 4y + 9 = 0$

76439048867. ✖  $x^2 + y^2 - 6x - 4y + 13 = 0$

76439048868. ✖  $x^2 + y^2 - 6x - 4y + 5 = 0$

Question Number : 18 Question Id : 76439012242 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The equation of the circle passing through (0,0), (0,1) and (1,0) is

Options :

76439048869. ✔  $x^2 + y^2 - x - y = 0$

76439048870. ✖  $x^2 + y^2 + x - y = 0$

76439048871. ✖  $x^2 + y^2 - x + y = 0$

76439048872. ✖  $x^2 + y^2 + x + y - 2 = 0$

Question Number : 19 Question Id : 76439012243 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If the circle  $x^2 + y^2 - 4x + 2fy + 4 = 0$  touches both coordinate axes, then the set of all possible values of  $f$  is

Options :

76439048873. ✖  $\{-4, 4\}$

76439048874. ✖  $\{-\sqrt{2}, \sqrt{2}\}$

76439048875. ✔  $\{-2, 2\}$

76439048876. ✖  $\{4\}$

Question Number : 20 Question Id : 76439012244 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If  $y = \cos^{-1}\left(\frac{a^2 - x^2}{a^2 + x^2}\right) + \sin^{-1}\left(\frac{2ax}{a^2 + x^2}\right)$ , then  $\frac{dy}{dx} =$

Options :

76439048877. ✖  $\frac{4a^2}{a^2 + x^2}$

76439048878. ✔  $\frac{4a}{a^2 + x^2}$

76439048879. ✖  $\frac{2a}{a^2 + x^2}$

76439048880. ✖  $\frac{2a^2}{a^2 + x^2}$

Question Number : 21 Question Id : 76439012245 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Let  $f: \mathbb{R} \rightarrow \mathbb{R}$  be defined by  $f(x) = |x + 1| + |x + 2| + |x + 3|$ . If  $f$  is differentiable

at  $x$ , then  $x$  belongs to the set

Options :

76439048881. ✖  $\{-1, -2, -3\}$

76439048882. ✖  $\mathbb{R} - \{1, 2, 3\}$

76439048883. ✔  $\mathbb{R} - \{-1, -2, -3\}$

76439048884. ✖  $\{1, 2, 3\}$

Question Number : 22 Question Id : 76439012246 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If  $y = \sin(m \sin^{-1} x)$ , then  $(1 - x^2) \frac{d^2 y}{dx^2} - x \frac{dy}{dx} =$

Options :

76439048885. ✖  $my$

76439048886. ✔  $-m^2 y$

76439048887. ✖  $m^2 y$

76439048888. ✖  $-my$

Question Number : 23 Question Id : 76439012247 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The slope of the tangent to the curve  $x^{2/3} + y^{2/3} = 2$  at  $(1, 1)$  is

Options :

76439048889. ✖ 0

76439048890. ✔ -1

76439048891. ✖ 1

76439048892. ✖ 2

Question Number : 24 Question Id : 76439012248 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The interval in which the rational function  $f(x) = \frac{x^2+x+1}{x^2-x+1}$  is decreasing is

Options :

76439048893. ✖ (-1, 1)

76439048894. ✖  $(-\infty, 1)$

76439048895. ✖  $(-1, \infty)$

76439048896. ✔  $(-\infty, -1) \cup (1, \infty)$

Question Number : 25 Question Id : 76439012249 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If  $\tan u = \frac{x^3+y^3}{x-y}$ ,  $x \neq y$ , then  $x \frac{\partial u}{\partial x} + y \frac{\partial u}{\partial y} =$

Options :

76439048897. ✖  $2u$

76439048898. ✔  $\sin 2u$

76439048899. ✖  $\cos 2u$

76439048900. ✖  $\tan 2u$

Question Number : 26 Question Id : 76439012250 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

$\lim_{x \rightarrow 0} \left( \frac{\tan x}{x} \right)^{1/x^2} =$

Options :

76439048901. ✖ 1

76439048902. ✖  $e$

76439048903. ✔  $e^{1/3}$

76439048904. ✖  $e^3$

Question Number : 27 Question Id : 76439012251 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

$$\int \frac{dx}{e^x + 1} =$$

Options :

76439048905. ✖  $\log(1 + e^{-x}) + C$

76439048906. ✖  $\log(1 + e^x) + C$

76439048907. ✔  $\log\left(\frac{e^x}{1 + e^x}\right) + C$

76439048908. ✖  $-\log(1 + e^x) + C$

Question Number : 28 Question Id : 76439012252 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

$$\int \frac{dx}{9\sin^2 x + 4\cos^2 x} =$$

Options :

76439048909. ✔  $\frac{1}{6} \tan^{-1}\left(\frac{3}{2} \tan x\right) + C$

76439048910. ✖  $\frac{1}{9} \tan^{-1}(\tan x) + C$

76439048911. ✖  $\frac{1}{12} \tan^{-1}\left(\tan \frac{2}{3} x\right) + C$



$$\frac{1}{6} \tan^{-1} \left( \tan \frac{3}{2} x \right) + C$$

76439048912. ✖

Question Number : 29 Question Id : 76439012253 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

$$\int_0^{\pi/2} (\sin^{5/2} x - \cos^{5/2} x) dx =$$

Options :

76439048913. ✔ 0

76439048914. ✖ 1

76439048915. ✖ -1

76439048916. ✖ 2

Question Number : 30 Question Id : 76439012254 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

$$\lim_{n \rightarrow \infty} \frac{3^k + 6^k + 9^k + \dots + (3n)^k}{n^{k+1}} =$$

Options :

76439048917. ✖  $\frac{3^{k+1}}{k+1}$

76439048918. ✔  $\frac{3^k}{k+1}$

76439048919. ✖  $\frac{3^{k+1}}{k}$

76439048920. ✖  $\frac{3^k}{k!}$

Question Number : 31 Question Id : 76439012255 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The area (in square units) of one of the curvilinear triangles bounded by  $y = \sin x$ ,  $y = \cos x$ ,

$x = 0$ ,  $x = \frac{\pi}{2}$  and  $x$ -axis is

Options :

76439048921. ✖  $2\sqrt{2}$

76439048922. ✖  $2 + \sqrt{2}$

76439048923. ✔  $2 - \sqrt{2}$

76439048924. ✖  $\sqrt{2}$

Question Number : 32 Question Id : 76439012256 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Let  $V_1$  be the volume of the solid formed by the revolution of the part of the parabola

$y^2 = 4ax$  cut off by the latus-rectum about the  $y$ -axis. Then  $V_1 =$

Options :

76439048925. ✖  $\frac{2\pi a^3}{5}$

76439048926. ✔  $\frac{4\pi a^3}{5}$

76439048927. ✖  $\frac{8\pi a^3}{5}$

76439048928. ✖  $\pi a^3$

Question Number : 33 Question Id : 76439012257 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The root mean square value of the sine function  $f(t) = A \sin t$  on  $[0, 2\pi]$  is

Options :

76439048929. ✖  $A\sqrt{2}$

76439048930. ✔  $\frac{A}{\sqrt{2}}$

76439048931. ✖  $A$

76439048932. ✖  $2A$

Question Number : 34 Question Id : 76439012258 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The approximate value of  $\int_0^4 f(x)dx$ , from the following table as sum of areas of 4 trapeziums is

$x$	0	1	2	3	4
$f(x)$	1	0.5	0.2	0.1	0.05884

Options :

76439048933. ✖ 1.31212

76439048934. ✔ 1.32942

76439048935. ✖ 1.33212

76439048936. ✖ 1.32121

Question Number : 35 Question Id : 76439012259 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The order of the differential equation corresponding to  $y = Ae^x + Be^{3x} + Ce^{5x}$ , where  $A, B, C$  are parameters is

Options :

76439048937. ✖ 2

76439048938. ✔ 3

76439048939. ✖ 4

76439048940. ✖ 6

Question Number : 36 Question Id : 76439012260 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The general solution of the differential equation  $(xy + x^3y)dy - (1 + y^2)dx = 0$ , is

Options :

76439048941. ✖  $(1 + x^2)(1 + y^2) = Ce^{x^2}$

76439048942. ✖  $(1 + x^2) / (1 + y^2) = Ce^{x^2}$

76439048943. ✔  $(1 + x^2)(1 + y^2) = Cx^2$

76439048944. ✖  $(1 + x^2) / (1 + y^2) = Cx^2$

Question Number : 37 Question Id : 76439012261 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The solution of the equation  $xdy - \left(y - x \cos^2 \frac{y}{x}\right)dx = 0, x > 0, y > 0$  which passes through

the point  $(1, \pi/4)$  is

Options :

76439048945. ✖  $\frac{4y}{\pi} = e^{1 - \tan\left(\frac{y}{x}\right)}$

76439048946. ✔  $x = e^{1 - \tan\left(\frac{y}{x}\right)}$

76439048947. ✖  $x = e^{-\tan\left(\frac{y}{x}\right)}$

76439048948. ✖  $y = \frac{\pi e}{4} e^{-\tan\left(\frac{y}{x}\right)}$

Question Number : 38 Question Id : 76439012262 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The differential equation of a family of all circles passing through the origin and having centres on the x-axis is

Options :

76439048949. ✖  $y' = \frac{x^2 + y^2}{2xy}$

76439048950. ✖  $y' = \frac{2xy}{x^2 - y^2}$

76439048951. ✔  $y' = \frac{y^2 - x^2}{2xy}$

76439048952. ✖  $y' = 2xy(x^2 + y^2)$

Question Number : 39 Question Id : 76439012263 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

An integrating factor of the differential equation  $(e^{-2\sqrt{x}} - y)dx - \sqrt{x}dy = 0$  is

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

Options :

76439048953.  $\frac{e^{-2\sqrt{x}}}{\sqrt{x}}$

76439048954.  $e^{-2\sqrt{x}}$

76439048955.  $\frac{e^{2\sqrt{x}}}{\sqrt{x}}$

76439048956.  $e^{-2\sqrt{x}}$

Question Number : 40 Question Id : 76439012264 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which of the following equations can be made exact by multiplying by  $x^2$ ?

Options :

$$\frac{dy}{dx} + \frac{2}{x}y = 4$$

76439048957. ✓

$$\frac{dy}{dx} + 3y = x$$

76439048958. ✘

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

76439048959. ✘

$$\frac{dy}{dx} + y = 3x$$

76439048960. ✘

Question Number : 41 Question Id : 76439012265 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A particular integral of  $(D-2)^2 y = 8(e^{2x} + \sin 2x)$  is

Options :

$$4x^2 e^{2x} + \cos 2x$$

76439048961. ✓

$$x^2 e^{2x} + \cos 2x$$

76439048962. ✘

$$4x e^{2x} - \cos 2x$$

76439048963. ✘

$$4x^2 e^x + \cos 2x$$

76439048964. ✘

Question Number : 42 Question Id : 76439012266 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The Complementary function of  $x^2 \frac{d^2 y}{dx^2} + 4x \frac{dy}{dx} + 2y = e^x$ , is

Options :

$$C_1 e^{-x} + C_2 e^{-2x}$$

76439048965. ✘

76439048966. ✓  $C_1x^{-1} + C_2x^{-2}$

76439048967. ✘  $C_1e^x + C_2e^{2x}$

76439048968. ✘  $C_1x^1 + C_2x^2$

Question Number : 43 Question Id : 76439012267 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Let  $f(t) = t^2e^{-3t}$ ,  $t \geq 0$ . Then the Laplace transform of  $f$  is

Options :

76439048969. ✓  $\frac{2}{(s+3)^3}$

76439048970. ✘  $\frac{2}{(s-3)^3}$

76439048971. ✘  $\frac{3}{(s+3)^3}$

76439048972. ✘  $\frac{-3}{(s+3)^3}$

Question Number : 44 Question Id : 76439012268 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Let  $f(t) = t \sin t$ ,  $t \geq 0$ , then the Laplace transform of  $f$  is

Options :

76439048973. ✓  $\frac{2s}{(1+s^2)^2}$

76439048974. ✘  $\frac{2s}{(1+s^2)^3}$

76439048975. ✘  $\frac{-2s}{(1+s^2)^2}$

76439048976. ✖  $\frac{-2s}{(1+s^2)^3}$

Question Number : 45 Question Id : 76439012269 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The inverse Laplace transform of  $\frac{3}{s^2-9}$  is

Options :

76439048977. ✖  $e^{3t}$

76439048978. ✖  $e^{-3t}$

76439048979. ✖  $\cos 3t$

76439048980. ✔  $\sinh 3t$

Question Number : 46 Question Id : 76439012270 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The inverse Laplace transform of  $\frac{1}{s^2(s^2+1)}$  is

Options :

76439048981. ✔  $t - \sin t$

76439048982. ✖  $t + \sin t$

76439048983. ✖  $2t - \sin t$

76439048984. ✖  $2t + \sin t$

Question Number : 47 Question Id : 76439012271 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If  $\frac{dx}{dt} + 3x = 0$ ,  $x(0) = 1$  and  $X(s)$  is Laplace transform of  $x(t)$ , then  $\frac{d}{ds} X(s) =$

Options :



76439048985. ✖  $\frac{1}{(s-3)^2}$

76439048986. ✔  $\frac{-1}{(s+3)^2}$

76439048987. ✖  $\frac{1}{s+3}$

76439048988. ✖  $\frac{-1}{s-3}$

Question Number : 48 Question Id : 76439012272 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If  $X(s)$  is Laplace transform of  $x(t)$  and  $t \frac{dx}{dt} + x(t) = \sin t$ , then  $\frac{d}{ds} X(s) =$

Options :

76439048989. ✖  $\frac{1}{s^2+1}$

76439048990. ✔  $-\frac{1}{s(s^2+1)}$

76439048991. ✖  $\frac{s}{s^2+1}$

76439048992. ✖  $-\frac{s}{s^2+1}$

Question Number : 49 Question Id : 76439012273 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The Fourier series of  $f(x) = x^2$  in  $-\pi \leq x \leq \pi$ , is

Options :

76439048993. ✖  $f(x) = \frac{\pi^2}{3} + 4 \sum_{n=1}^{\infty} \frac{(-1)^n}{n^2} \cos(nx)$

76439048994. ✓  $f(x) = \frac{2\pi^2}{3} + 4 \sum_{n=1}^{\infty} \frac{(-1)^n}{n^2} \cos(nx)$

76439048995. ✘  $f(x) = \frac{\pi^2}{3} + \sum_{n=1}^{\infty} \frac{(-1)^n}{n^2} \cos(nx)$

76439048996. ✘  $f(x) = \frac{\pi^2}{3} + 4 \sum_{n=1}^{\infty} \frac{(-1)^n}{n} \cos(nx)$

Question Number : 50 Question Id : 76439012274 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The Fourier series of the function  $f(x) = 2x + 1$ , in  $-\pi < x < \pi$ , is

Options :

76439048997. ✘  $1 + 4 \sum_{n=1}^{\infty} \frac{(-1)^n}{n^2} \sin (nx)$

76439048998. ✘  $1 + 4 \sum_{n=1}^{\infty} \frac{(-1)^n}{n^2} \cos (nx)$

76439048999. ✘  $1 - 4 \sum_{n=1}^{\infty} \frac{(-1)^n}{n} \cos (nx)$

76439049000. ✓  $1 - 4 \sum_{n=1}^{\infty} \frac{(-1)^n}{n} \sin (nx)$

## Physics

Section Id :	764390240
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 :	Yes
Mark As Answered Required? :	Yes
Sub-Section Number :	1
Sub-Section Id :	764390270
Question Shuffling Allowed :	Yes

Question Number : 51 Question Id : 76439012275 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The dimensional formula for Kinetic energy is

Options :

76439049001. ✘  $M^0 L^0 T^0$

76439049002. ✔  $M L^2 T^{-2}$

76439049003. ✘  $M L^2 T^{-1}$

76439049004. ✘  $M L T^{-2}$

Question Number : 52 Question Id : 76439012276 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Match the following quantities with its SI Units

- |             |              |
|-------------|--------------|
| a) Energy   | (i) Watt     |
| b) Force    | (ii) Newton  |
| c) Power    | (iii) Pascal |
| d) Pressure | (iv) Joule   |

Choose the correct option from the following:

Options :

76439049005. ✔ a-iv, b-ii, c-i, d-iii

76439049006. ✘ a-iv, b-i, c-ii, d-iii

76439049007. ✘ a-i, b-ii, c-iii, d-iv

76439049008. ✘ a-iv, b-ii, c-iii, d-i

Question Number : 53 Question Id : 76439012277 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Choose the correct form of Einstein's photoelectric equation, where the symbols have their usual meaning.

Options :

76439049009. ✔  $h\nu = \frac{1}{2} m v_{\max}^2 + W_0$

76439049010. ✖  $h\nu = \frac{1}{2} mv_{\max}^2 - W_0$

76439049011. ✖  $h\nu_0 = \frac{1}{2} mv_{\max}^2 + h\nu$

76439049012. ✖  $h\nu_0 = \frac{1}{2} mv_{\max}^2 - h\nu$

Question Number : 54 Question Id : 76439012278 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The electrical resistance for superconductor is

Options :

76439049013. ✖ Infinity

76439049014. ✔ Zero

76439049015. ✖ Very high

76439049016. ✖ Depends on the material

Question Number : 55 Question Id : 76439012279 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Convert  $-15^{\circ}\text{C}$  into Fahrenheit scale

Options :

76439049017. ✖  $20^{\circ}\text{F}$

76439049018. ✖  $15^{\circ}\text{F}$

76439049019. ✖  $10^{\circ}\text{F}$

76439049020. ✔  $5^{\circ}\text{F}$

Question Number : 56 Question Id : 76439012280 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If the heat is added to the system then, it is utilised to

A. Change in its internal energy

B. the work done by it

Choose the correct option from the following:

Options :

76439049021. ✖ only A is correct

76439049022. ✖ only B is correct

76439049023. ✔ Both A and B are correct

76439049024. ✖ Both A and B are not correct

Question Number : 57 Question Id : 76439012281 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If  $|\vec{A} + \vec{B}| = |\vec{A} - \vec{B}|$ , then the angle between  $\vec{A}$  and  $\vec{B}$  will be

Options :

76439049025. ✔  $\frac{\pi}{2}$

76439049026. ✖  $\pi$

76439049027. ✖  $\frac{\pi}{3}$

76439049028. ✖  $\frac{\pi}{4}$

Question Number : 58 Question Id : 76439012282 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A force vector applied on a mass 'm' is represented as  $\vec{F} = 8\hat{i} + 10\hat{j} + 6\hat{k}$  and accelerates it with  $2\text{m/sec}^2$ , the mass of the body is

Options :

76439049029. ✖ 20 kg

76439049030. ✖  $10\sqrt{2}$  kg

76439049031. ✖ 30 kg

76439049032. ✔  $\frac{10}{\sqrt{2}}$  kg

Question Number : 59 Question Id : 76439012283 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The splash of sound is heard 2.05 sec after the stone is dropped into a well of depth 19.6 m.

Velocity of the sound is ( $g=9.8$  m/sec<sup>2</sup>).

Options :

76439049033. ✖ 592 m/sec

76439049034. ✖ 692 m/sec

76439049035. ✔ 392 m/sec

76439049036. ✖ 292 m/sec

Question Number : 60 Question Id : 76439012284 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Four bodies P, Q, R and S are projected with equal velocities having angle of projection

$15^\circ, 30^\circ, 45^\circ$  and  $60^\circ$  with the horizontal respectively. the body having shortest range is

Options :

76439049037. ✖  $\sqrt{3} \frac{u^2}{2g}$

76439049038. ✖  $\frac{u^2}{g}$

76439049039. ✔  $\frac{u^2}{2g}$

76439049040. ✖  $\frac{\sqrt{3}u^2}{2g}$

Question Number : 61 Question Id : 76439012285 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A stone is thrown vertically upwards from the ground. It reaches a maximum height of 50 m in 10 sec. After what time will it reach the ground from the maximum height. (if the air resistance is not considered)

Options :

76439049041. ✘ 20 sec

76439049042. ✔ 10 sec

76439049043. ✘ 30 sec

76439049044. ✘ 5 sec

Question Number : 62 Question Id : 76439012286 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If  $\mu_s$ ,  $\mu_k$ , and  $\mu_r$  are the co-efficient of static, kinetic and rolling friction respectively then

Options :

76439049045. ✘  $\mu_s > \mu_k < \mu_r$

76439049046. ✘  $\mu_s < \mu_k > \mu_r$

76439049047. ✘  $\mu_s = \mu_k = \mu_r$

76439049048. ✔  $\mu_s > \mu_k > \mu_r$

Question Number : 63 Question Id : 76439012287 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A wooden block of 100 kg is about to be pushed on a floor of coefficient of friction 0.4. What is the magnitude of the force of friction on the wooden block when it is just pushed.

Options :

76439049049. ✘ 196N



76439049050. ✖ 490N

76439049051. ✔ 392N

76439049052. ✖ 294N

Question Number : 64 Question Id : 76439012288 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The area under a 'force - displacement' curve gives.

Options :

76439049053. ✖ Time

76439049054. ✔ Work

76439049055. ✖ Impulse

76439049056. ✖ Power

Question Number : 65 Question Id : 76439012289 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If a body is released from a certain height, during its fall.

Options :

76439049057. ✖ Its potential energy increases and kinetic energy decreases

76439049058. ✔ Its kinetic energy increases and potential energy decreases

76439049059. ✖ Both potential energy and kinetic energy of that body increases

76439049060. ✖ Both potential energy and kinetic energy decreases

Question Number : 66 Question Id : 76439012290 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Find the power of an electric motor, if it lifts 200 kg of water in 5 minutes from a well of 120 m depth.



Options :

76439049061. ✖ 790W

76439049062. ✔ 784W

76439049063. ✖ 768W

76439049064. ✖ 755W

Question Number : 67 Question Id : 76439012291 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

What is the length of the seconds pendulum on a planet having 'g' value  $1/6^{\text{th}}$  of the value of the earth

Options :

76439049065. ✖ 0.15 meters

76439049066. ✖ 1.5 meters

76439049067. ✖ 2 meters

76439049068. ✔ 0.165 meters

Question Number : 68 Question Id : 76439012292 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A particle is executing SHM on a line of length 0.1 m. If the velocity of the particle while passing the mean position is 0.2 m/s. time period of the particle is

Options :

76439049069. ✔ 1.57 sec

76439049070. ✖ 2.57 sec

76439049071. ✖ 2 sec

76439049072. ✖ 3 sec

Question Number : 69 Question Id : 76439012293 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The frequency range of the audible sounds is

Options :

76439049073. ✖ 20KHz to 20MHz

76439049074. ✔ 20Hz to 20,000 Hz

76439049075. ✖ Less than 20 Hz

76439049076. ✖ Greater than 20,000 Hz

Question Number : 70 Question Id : 76439012294 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Accordingly to Doppler effect. If source is in motion towards listener with velocity  $V_s$  and listener is at rest then equation of apparent frequency is ( $n_o$  = Actual frequency,  $v$  = velocity of sound,  $n$  = Apparent frequency)

Options :

76439049077. ✔  $n = \frac{n_o V}{V - V_s}$

76439049078. ✖  $n = \frac{n_o (V - V_s)}{V}$

76439049079. ✖  $n = \frac{nV}{V_o}$

76439049080. ✖  $n = \frac{nV_o}{V}$

Question Number : 71 Question Id : 76439012295 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A soap bubble is blown to a radius of 3cm. if it to be further blown to a radius of 4 cm. Then what is the work done :(  $T= 3.06 \times 10^2 \text{ N/m}$ )

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

Options :

76439049081.  $450 \times 10^{-6} \text{ J}$

76439049082.  $330 \times 10^{-4} \text{ J}$

76439049083.  $5 \times 10^{-6} \text{ J}$

76439049084.  $539.6 \times 10^{-6} \text{ J}$

Question Number : 72 Question Id : 76439012296 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A steel wire of 2mm diameter is stretched by applying a force of 72N, then the stress in the wire

Options :

76439049085. ✘  $16.6 \times 10^6 \text{ N/m}^2$

76439049086. ✘  $20 \times 10^6 \text{ N/m}^2$

76439049087. ✔  $2.292 \times 10^7 \text{ N/m}^2$

76439049088. ✘  $32 \times 10^7 \text{ N/m}^2$

Question Number : 73 Question Id : 76439012297 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A bar magnet of magnetic moment  $\vec{M}$  is placed in a magnetic field of induction  $\vec{B}$  , the torque exerted on it is

Options :

76439049089. ✔  $\vec{M} \times \vec{B}$

76439049090. ✖  $\vec{B} \times \vec{M}$

76439049091. ✖  $\vec{M} \cdot \vec{B}$

76439049092. ✖  $-\vec{M} \cdot \vec{B}$

Question Number : 74 Question Id : 76439012298 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The magnetism of magnet is due to

Options :

76439049093. ✖ Earth

76439049094. ✖ Cosmic rays

76439049095. ✔ Spin motion of electron

76439049096. ✖ Pressure of big magnet inside the earth

Question Number : 75 Question Id : 76439012299 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

In a meter bridge experiment the ratio of the left gap resistance to right gap resistance is 3:2, the balance point from left is

Options :

76439049097. ✖ 50 centimetres

76439049098. ✔ 60 centimetres

76439049099. ✖ 30 centimetres

76439049100. ✖ 40 centimetres

## Chemistry

Section Id :

764390241

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 :	Yes
Mark As Answered Required? :	Yes
Sub-Section Number :	1
Sub-Section Id :	764390271
Question Shuffling Allowed :	Yes

Question Number : 76 Question Id : 76439012300 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Match the following

- |                             |   |
|-----------------------------|---|
| A. Principle quantum number | 1. The electron spin may be either in clock wise or anticlockwise direction |
| B. Azimuthal quantum number | 2. Gives the number of orbitals in each sublevel                            |
| C. Magnetic quantum number  | 3. Determines shape of the electrons orbital                                |
| D. Spin quantum number      | 4. Indicates the size of the orbit  |

Choose the correct option from the following:

Options :

76439049101. ✘ A-2, B-1, C-4, D-3

76439049102. ✔ A-4, B-3, C-2, D-1

76439049103. ✘ A-4, B-3, C-1, D-2

76439049104. ✘ A-3, B-2, C-4, D-1

Question Number : 77 Question Id : 76439012301 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Select the incorrect statement from the following options.

Options :

76439049105. ✘ Atomic number is equal to no of electrons

76439049106. ✔ Mass number is equal to number of protons plus number of electrons

76439049107. ✘ Number of neutrons is the difference between mass number and atomic number

76439049108. ✘ Nucleus of an atom consist protons and neutrons

Question Number : 78 Question Id : 76439012302 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which one of the following statements is false?

Options :

76439049109. ✘ The oxidation number of oxygen in peroxide is '-1'

76439049110. ✘ The oxidation number of hydrogen in hydrides is negative

76439049111. ✔ The oxidation number of F, Cl, Br, I is always +1

76439049112. ✘ The oxidation number of a free element is zero

Question Number : 79 Question Id : 76439012303 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

What is the required volume of water to prepare 1.8 M  $\text{H}_2\text{SO}_4$  solution from 250 ml of 9M  $\text{H}_2\text{SO}_4$  solution?

Options :

76439049113. ✘ 750ml

76439049114. ✘ 500 ml

76439049115. ✘ 250 ml

76439049116. ✔ 1000 ml

Question Number : 80 Question Id : 76439012304 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

What is the gram equivalent weight (G.E.W) of oxalic acid?

Options :

76439049117. ✘ 90gm

76439049118. ✘ 85 gm

76439049119. ✔ 45 gm



76439049120. ✖ 55 gm

Question Number : 81 Question Id : 76439012305 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which of the following compounds are Lewis acids

Options :

76439049121. ✖  $H_2, NH_3, NaOH$

76439049122. ✖  $CH_3COOH, Cl^-, OH^-$

76439049123. ✖  $C_6H_6, N_2, CH_3OH$

76439049124. ✔  $FeCl_3, BCl_3, H^+$

Question Number : 82 Question Id : 76439012306 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

pH value of 0.01 M HCl solution is

Options :

76439049125. ✔ 2

76439049126. ✖ 1

76439049127. ✖ 4

76439049128. ✖ 3

Question Number : 83 Question Id : 76439012307 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Match the following

- |                            |  |
|----------------------------|--|
| (i) Ionic product of water | (a) $\text{NH}_4\text{Cl} + \text{NH}_4\text{OH}$      |
| (ii) Basic buffer          | (b) $\text{CH}_3\text{COOH} + \text{CH}_3\text{COONa}$ |
| (iii) Bronsted Base        | (c) $[\text{H}^+][\text{OH}^-]$                        |
| (iv) Acidic buffer         | (d) $\text{NH}_3$                                      |

Choose the correct option from the following:

Options :

76439049129. ✘ i-a, ii-b, iii-c, iv-d

76439049130. ✘ i-d, ii-c, iii-b, iv-a

76439049131. ✔ i-c, ii-a, iii-d, iv-b

76439049132. ✘ i-b, ii-d, iii-a, iv-c

Question Number : 84 Question Id : 76439012308 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Match the following

- |                              |                           |
|------------------------------|---------------------------|
| (i) Froth floatation process | (a) Regular supply of air |
| (ii) Roasting                | (b) Pyro chemical process |
| (iii) Calcination            | (c) Sulphide ores         |
| (iv) Smelting                | (d) Absence of air        |

Choose the correct option from the following:

Options :

76439049133. ✔ i-c, ii-a, iii-d, iv-b

76439049134. ✘ i-c, ii-d, iii-b, iv-a

76439049135. ✘ i-b, ii-a, iii-c, iv-d

76439049136. ✘ i-a, ii-d, iii-c, iv-b

Question Number : 85 Question Id : 76439012309 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0



German silver consists of

Options :

76439049137. ✘ Zn, Ni, Mn

76439049138. ✘ Cu, Al, Ni

76439049139. ✔ Cu, Zn, Ni

76439049140. ✘ Fe, Cu, Ni

Question Number : 86 Question Id : 76439012310 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Electrolyte that is present in salt bridge of Galvanic cell is

Options :

76439049141. ✘ NaCl aqueous

76439049142. ✘ Fused NaCl

76439049143. ✔ KCl

76439049144. ✘ HCl

Question Number : 87 Question Id : 76439012311 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which of the following electrode has highest oxidation potential value in electro chemical series?

Options :

76439049145. ✘ Hydrogen

76439049146. ✔ Lithium

76439049147. ✘ Copper

76439049148. ✘ Gold

Question Number : 88 Question Id : 76439012312 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Statement a: Pure metal resists corrosion

Statement b: Electro chemical theory of corrosion of metal is done in dry environment

Choose the correct option from the following:

Options :

76439049149. ✘ Both the statements are correct

76439049150. ✘ Both the statements are incorrect

76439049151. ✘ Statement 'a' is incorrect, 'b' is correct

76439049152. ✔ Statement 'a' is correct, 'b' is incorrect

Question Number : 89 Question Id : 76439012313 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

In sacrificial anodic protection method the metal that saves steel pipes from corrosion is

Options :

76439049153. ✘ Copper

76439049154. ✔ Magnesium

76439049155. ✘ Gold

76439049156. ✘ Cadmium

Question Number : 90 Question Id : 76439012314 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Match the following

- |   |                        |
|---|------------------------|
| (i) CO <sub>2</sub> , SO <sub>2</sub> gases with humidity | (a) pH = 11            |
| (ii) Zn Corrodes maximum                                  | (b) pH = 5.5           |
| (iii) Al corrodes minimum                                 | (c) Galvanic corrosion |
| (iv) Zn corrodes minimum                                  | (d) pH > 11            |

Choose the correct option from the following:

Options :

76439049157. ✘ i-c, ii-b, iii-d, iv-a

76439049158. ✘ i-c, ii-a, iii-d, iv-b

76439049159. ✔ i-c, ii-d, iii-b, iv-a

76439049160. ✘ i-c, ii-b, iii-a, iv-d

Question Number : 91 Question Id : 76439012315 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Permanent Hardness of water is due to

Options :

76439049161. ✘ Hydroxides

76439049162. ✘ Bicarbonates

76439049163. ✔ Chlorides

76439049164. ✘ Carbonates

Question Number : 92 Question Id : 76439012316 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which of the following is Unit of hardness of water

Options :

76439049165. ✘ mg

76439049166. ✔ ppm

76439049167. ✖ cm

76439049168. ✖ Siemens

Question Number : 93 Question Id : 76439012317 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The solvent moves from low concentration to higher concentration through a semi permeable membrane, the process is known as

Options :

76439049169. ✔ Osmosis

76439049170. ✖ Reverse Osmosis

76439049171. ✖ Electrodialysis

76439049172. ✖ Flash distillation

Question Number : 94 Question Id : 76439012318 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The monomers in the preparation of Nylon 6:6 are

Options :

76439049173. ✖ Vinyl chloride and Hexamethylene diamine

76439049174. ✖ Styrene and Adipic acid

76439049175. ✖ Phenol and Formaldehyde

76439049176. ✔ Adipic acid and Hexamethylene diamine

Question Number : 95 Question Id : 76439012319 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Natural rubber is composed of \_\_\_\_\_ monomer units

Options :

76439049177. ✖ Isobutylene

76439049178. ✘ Isopropylene

76439049179. ✔ Isoprene

76439049180. ✘ Butadiene

Question Number : 96 Question Id : 76439012320 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Polychloroprene is also known as

Options :

76439049181. ✔ Neoprene

76439049182. ✘ Butyl rubber

76439049183. ✘ Buna-S

76439049184. ✘ PVC

Question Number : 97 Question Id : 76439012321 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Match the following

- |                 |   |
|-----------------|---|
| 1. Water gas    | A. Consist $N_2$ 52 to 55 %                 |
| 2. Producer gas | B. Consist of 5% non-combustible gases      |
| 3. Coal gas     | C. used in industrial and domestic purposes |
| 4. Natural gas  | D. A mixture of CO 41% and Hydrogen 51%     |

Choose the correct option from the following:

Options :

76439049185. ✔ 1-D, 2-A, 3-B, 4-C

76439049186. ✘ 1-D, 2-A, 3-C, 4-B

76439049187. ✘ 1-B, 2-A, 3-D, 4-C

76439049188. ✘ 1-C, 2-A, 3-D, 4-B

Question Number : 98 Question Id : 76439012322 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The air pollution caused during the Bhopal gas tragedy was by the release of \_\_\_\_\_

Options :

76439049189. ✘ Methyl cyanide

76439049190. ✘ Ethyl Isocyanate

76439049191. ✘ Hydrogen Cyanide

76439049192. ✔ Methyl Isocyanate

Question Number : 99 Question Id : 76439012323 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which of the following gases is not a green house gas?

Options :

76439049193. ✔ Carbon monoxide

76439049194. ✘ Ozone

76439049195. ✘ Methane

76439049196. ✘ Water vapour

Question Number : 100 Question Id : 76439012324 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Match the following

- |                             |  |
|-----------------------------|--|
| i. Aerosols                 | A. Vinyl Chloride  |
| ii. Pesticides              | B. Consist of fine particles of organic and inorganic compounds    |
| iii. Carcinogens            | C. Causes chronic cellular damage in man and animals               |
| iv. Radio active pollutants | D. Absorbed by plants through Soil and effects on living organisms |

Choose the correct option from the following:

Options :

76439049197. ✓ i-B, ii-D, iii-A, iv-C

76439049198. ✘ i-D, ii-B, iii-A, iv -C

76439049199. ✘ i-D, ii-A, iii-B, iv-C

76439049200. ✘ i-B, ii-C, iii-D, iv-A

## Electronics and Instrumentation Engineering

Section Id :	764390242
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 :	Yes
Mark As Answered Required? :	Yes
Sub-Section Number :	1
Sub-Section Id :	764390272
Question Shuffling Allowed :	Yes

Question Number : 101 Question Id : 76439012325 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Ohms law cannot be expressed as

Options :

76439049201. ✘  $I = V/R$

76439049202. ✘  $V = IR$

76439049203. ✘  $R = V/I$

76439049204. ✓  $R = VI$

Question Number : 102 Question Id : 76439012326 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Two electric bulbs of 40W each are connected in parallel across AC mains. The power consumed by the combination is

Options :



76439049205. ✖ 20W

76439049206. ✖ 40W

76439049207. ✖ 60W

76439049208. ✔ 80W

Question Number : 103 Question Id : 76439012327 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

\_\_\_\_\_ law states that “when the magnetic flux linking a conductor coil changes an emf is induced in it”.

Options :

76439049209. ✖ lenz’s law

76439049210. ✔ farady’s law -I

76439049211. ✖ Faraday’s law -II

76439049212. ✖ Biot Savart’s Law

Question Number : 104 Question Id : 76439012328 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If the coefficient of coupling between two coils is increased, mutual inductance between the coils

Options :

76439049213. ✔ Increases

76439049214. ✖ Decreases

76439049215. ✖ Increases & Decreases

76439049216. ✖ Does not change

Question Number : 105 Question Id : 76439012329 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical



Correct Marks : 1 Wrong Marks : 0

An insulator placed in an electric field is called a \_\_\_\_\_

Options :

76439049217. ✓ Dielectric

76439049218. ✗ Dimagnetic

76439049219. ✗ Dieinsulator

76439049220. ✗ Electrostatic

Question Number : 106 Question Id : 76439012330 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The commercial lead-acid cell battery has 15 plates. The number of negative plates will be

Options :

76439049221. ✗ 7

76439049222. ✗ 9

76439049223. ✗ 10

76439049224. ✓ 8

Question Number : 107 Question Id : 76439012331 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

When the primary of a transformer is connected to a DC supply \_\_\_\_\_

Options :

76439049225. ✗ Primary draws small current

76439049226. ✗ Primary leakage reactance is increased

76439049227. ✗ Core losses are increased

76439049228. ✓ Primary may burn out

Question Number : 108 Question Id : 76439012332 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A DC motor is used to \_\_\_\_\_

Options :

- 76439049229. ✖ Generate power
- 76439049230. ✖ Change mechanical energy to electrical energy
- 76439049231. ✔ Change electrical energy to mechanical energy
- 76439049232. ✖ Increase energy put into it

Question Number : 109 Question Id : 76439012333 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which among the following is preferred when there is a voltage source is present between two nodes.

Options :

- 76439049233. ✖ Node analysis
- 76439049234. ✔ Super node analysis
- 76439049235. ✖ Mesh analysis
- 76439049236. ✖ Super mesh analysis

Question Number : 110 Question Id : 76439012334 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

\_\_\_\_\_ theorem states that “maximum power is transferred from source to load when the load resistance is made equal to internal resistance of the source”

Options :

- 76439049237. ✖ Superposition theorem
- 76439049238. ✖ Thevenin’s theorem
- 76439049239. ✔ Maximum power transfer theorem

### Norton's theorem

76439049240. ✖

Question Number : 111 Question Id : 76439012335 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

An AC circuit containing reactive elements (L and C) is said to be in resonance when the circuit \_\_\_\_\_ is unity.

Options :

76439049241. ✔ Power factor

76439049242. ✖  $X_L$

76439049243. ✖  $X_C$

76439049244. ✖ R

Question Number : 112 Question Id : 76439012336 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The stator of a 3-phase Induction motor produces \_\_\_\_\_ magnetic field

Options :

76439049245. ✖ Steady

76439049246. ✔ Rotating

76439049247. ✖ Alternating

76439049248. ✖ Fixed

Question Number : 113 Question Id : 76439012337 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The resistance of a photo conductive cell is \_\_\_\_\_ in dark

Options :

76439049249. ✔ High

76439049250. ✖ Low

76439049251. ✖ Medium

76439049252. ✖ Zero

Question Number : 114 Question Id : 76439012338 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A photo multiplier tube consists of a photo cathode, an anode and several additional electrodes known as \_\_\_\_\_

Options :

76439049253. ✖ Photo transistors

76439049254. ✖ Photo resistors

76439049255. ✖ Photo diodes

76439049256. ✔ Dynodes

Question Number : 115 Question Id : 76439012339 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

\_\_\_\_\_ may be used for display of numeric and alpha numeric characters

Options :

76439049257. ✖ Seven segment display

76439049258. ✔ Dot matrices

76439049259. ✖ LED

76439049260. ✖ LCD

Question Number : 116 Question Id : 76439012340 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Induction heating process is based on

Options :

76439049261. ✖ Thermal ion release principle

76439049262. ✖ Resistance heating principle

76439049263. ✓ Electro- magnetic Induction principle

76439049264. ✗ Nuclear heating principle

Question Number : 117 Question Id : 76439012341 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The sensors which uses wave propagation principle to produce output is called \_\_\_\_\_

Options :

76439049265. ✓ Ultrasonic sensor

76439049266. ✗ Resistive sensor

76439049267. ✗ Inductive sensor

76439049268. ✗ Capacitive sensor

Question Number : 118 Question Id : 76439012342 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A system with feedback is called as

Options :

76439049269. ✗ Open loop system

76439049270. ✗ No gain system

76439049271. ✗ FIR system

76439049272. ✓ Closed loop system

Question Number : 119 Question Id : 76439012343 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A linear system is one in which the principle of \_\_\_\_\_ theorem holds.

Options :

76439049273. ✗ Norton's

76439049274. ✘ Thevenin's

76439049275. ✔ Superposition

76439049276. ✘ Maximum Power transfer

Question Number : 120 Question Id : 76439012344 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A system whose input – output relationship does not vary with time is called as \_\_\_\_\_

Options :

76439049277. ✔ Time invariant system

76439049278. ✘ Time variant system

76439049279. ✘ Linear system

76439049280. ✘ Non Linear system

Question Number : 121 Question Id : 76439012345 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

\_\_\_\_\_ is a process by which a continuous-time signal is converted into a discrete - time signal

Options :

76439049281. ✔ Sampling

76439049282. ✘ Encoding

76439049283. ✘ Decoding

76439049284. ✘ Quantizing

Question Number : 122 Question Id : 76439012346 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The closed loop transfer function of a negative feedback system with open loop transfer function (G (s)) and feedback transfer function (H(S)) is

Options :

76439049285. ✘  $\frac{G(s)}{H(s)}$

76439049286. ✔  $\frac{G(s)}{1+G(s)H(s)}$

76439049287. ✘  $\frac{G(s)}{1+G(s)}$

76439049288. ✘  $\frac{G(s)}{1-G(s)H(s)}$

Question Number : 123 Question Id : 76439012347 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

To optimize the mathematical model of a physical system we may use \_\_\_\_\_

Options :

76439049289. ✘ KCL

76439049290. ✘ KVL

76439049291. ✔ Block diagram reduction technique

76439049292. ✘ Ohm's law

Question Number : 124 Question Id : 76439012348 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The steady state error of unit response of first order system is

Options :

76439049293. ✘  $e_{ss} = \bar{c}$

76439049294. ✔  $e_{ss} = 0$

76439049295. ✘  $e_{ss} = T(1 - e^{-\frac{t}{T}})$



$$e_{ss} = \infty$$

76439049296. ✖

Question Number : 125 Question Id : 76439012349 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The specific resistance of a wire depends upon

Options :

Its length

76439049297. ✖

Its cross-section area

76439049298. ✖

Its dimensions

76439049299. ✖

Its material

76439049300. ✔

Question Number : 126 Question Id : 76439012350 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If the number of valence electrons of an atom is more than 4, the substance is usually

Options :

A conductor

76439049301. ✖

An insulator

76439049302. ✔

A semiconductor

76439049303. ✖

A super conductor

76439049304. ✖

Question Number : 127 Question Id : 76439012351 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

When the reverse voltage of a P-N junction increases from 5V to 10V, the depletion layer

Options :

Becomes smaller

76439049305. ✖

Becomes larger

76439049306. ✔



Is unaffected

76439049307. ✖

Breaks down

76439049308. ✖

Question Number : 128 Question Id : 76439012352 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

With a half-wave rectified voltage across the load resistor, load current flows for what part of a cycle?

Options :

76439049309. ✖  $0^0$

76439049310. ✖  $90^0$

76439049311. ✔  $180^0$

76439049312. ✖  $360^0$

Question Number : 129 Question Id : 76439012353 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Who invented the first junction transistor?

Options :

76439049313. ✖ Bell

76439049314. ✖ Faraday

76439049315. ✖ Marconi

76439049316. ✔ Schockley

Question Number : 130 Question Id : 76439012354 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

DIAC and TRIAC are \_\_\_\_\_ directional thyristors

Options :

76439049317. ✔ Bi

76439049318. ✖ Uni

76439049319. ✖ Tri

76439049320. ✖ Non

Question Number : 131 Question Id : 76439012355 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Transformer coupling is an example of

Options :

76439049321. ✖ Direct coupling

76439049322. ✔ AC coupling

76439049323. ✖ DC coupling

76439049324. ✖ Impedance coupling

Question Number : 132 Question Id : 76439012356 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The voltage that starts an oscillator is caused by

Options :

76439049325. ✔ Ripple from the power supply

76439049326. ✖ Noise voltage in resistors

76439049327. ✖ The input signal from a generator

76439049328. ✖ The negative feedback

Question Number : 133 Question Id : 76439012357 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A mono stable multi-vibrator has \_\_\_\_\_ Stable states

Options :

76439049329. ✖ Two

Three

76439049330. ✖

One

76439049331. ✔

Zero

76439049332. ✖

Question Number : 134 Question Id : 76439012358 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For BJT to be biased in its linear region the following is true

Options :

76439049333. ✔ The  $V_{be}$  junction must be forward biased & the  $V_{bc}$  junction must be reverse biased

76439049334. ✖ The  $V_{be}$  junction must be reverse biased & the  $V_{bc}$  junction must be reverse biased

76439049335. ✖ The  $V_{be}$  junction must be forward biased & the  $V_{bc}$  junction must be forward biased

76439049336. ✖ The  $V_{be}$  junction must be reverse biased & the  $V_{bc}$  junction must be forward biased

Question Number : 135 Question Id : 76439012359 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The feedback gain  $A_f$  in case of voltage shunt feedback with open loop gain  $A$  and feedback factor  $\beta$  is related as

Options :

76439049337. ✖  $A_f = A(1+A\beta)$

76439049338. ✖  $A_f = A/(1-A\beta)$

76439049339. ✔  $A_f = A/(1+A\beta)$

76439049340. ✖  $A_f = A(1-A\beta)$

Question Number : 136 Question Id : 76439012360 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Very large scale integration (VLSI) describes, integrated circuits with complexities of \_\_\_\_\_ to \_\_\_\_\_ equivalent gates per chip.

Options :

76439049341. ✘ 100 to 9999

76439049342. ✔ 10000 to 99999

76439049343. ✘ 12 to 99

76439049344. ✘ 100000 and above

Question Number : 137 Question Id : 76439012361 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which one of the following is not a valid rule of Boolean Algebra

Options :

76439049345. ✘  $A+1 = 1$

76439049346. ✔  $A = \bar{A}$

76439049347. ✘  $AA = A$

76439049348. ✘  $A+0 = A$

Question Number : 138 Question Id : 76439012362 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A 3 variable K-map has

Options :

76439049349. ✔ 8 cells

76439049350. ✘ 3 cells

76439049351. ✘ 16cells

76439049352. ✘ 4 cells

Question Number : 139 Question Id : 76439012363 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The 2's compliment of 11001000 is

Options :

76439049353. ✘ 01001000

76439049354. ✘ 00110111

76439049355. ✘ 00110001

76439049356. ✔ 00111000

Question Number : 140 Question Id : 76439012364 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The output of a gate is low if and only if all its inputs are high, it is true for

Options :

76439049357. ✘ AND gate

76439049358. ✘ XNOR gate

76439049359. ✘ NOR gate

76439049360. ✔ NAND gate

Question Number : 141 Question Id : 76439012365 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The invalid state of an SR latch occurs when

Options :

76439049361. ✘ S=1, R=0

76439049362. ✘ S=0, R=1

76439049363. ✔ S=1, R=1

76439049364. ✘ S=0, R=0

Question Number : 142 Question Id : 76439012366 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If a 1 to 16 decoder with active low outputs exhibits a low on the decimal 12 output, what are the inputs?

Options :

76439049365. ✘ A3A2A1A0=1010

76439049366. ✘ A3A2A1A0=1110

76439049367. ✔ A3A2A1A0= 1100

76439049368. ✘ A3A2A1A0= 0100

Question Number : 143 Question Id : 76439012367 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

In general, a multiplexer has

Options :

76439049369. ✘ One data input, several data outputs and selection inputs

76439049370. ✘ One data input, one data output and one selection inputs

76439049371. ✘ Several data input, several data outputs and selection inputs

76439049372. ✔ Several data input, one data output and selection inputs

Question Number : 144 Question Id : 76439012368 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

An Asynchronous counter differs from a synchronous counter in

Options :

76439049373. ✘ The number of states in its sequence

76439049374. ✔ The method of clocking

76439049375. ✘ The type of flip-flops used

The values of the modulus

76439049376. ✖

Question Number : 145 Question Id : 76439012369 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

To serially shift a byte of data into a shift register, there must be

Options :

76439049377. ✖ One clock pulse

76439049378. ✖ One load pulse

76439049379. ✔ Eight clock pulses

76439049380. ✖ One clock pulse for each 1 in the data

Question Number : 146 Question Id : 76439012370 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A ROM is a

Options :

76439049381. ✖ Read/ write memory

76439049382. ✖ Volatile memory

76439049383. ✖ Byte organized memory

76439049384. ✔ Non volatile memory

Question Number : 147 Question Id : 76439012371 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The ADC in which DAC is included is

Options :

76439049385. ✖ Flash type ADC

76439049386. ✔ Successive approximation type ADC



76439049387. ✖ R to 2R type

76439049388. ✖ Binary weighted type

Question Number : 148 Question Id : 76439012372 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

An R-2R digital to Analog Converter uses \_\_\_\_\_ number of resistance values along with a precise voltage source

Options :

76439049389. ✖ 3

76439049390. ✖ 4

76439049391. ✖ 1

76439049392. ✔ 2

Question Number : 149 Question Id : 76439012373 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The disadvantage of a PMMC is

Options :

76439049393. ✔ High cost relative to moving iron instruments

76439049394. ✖ High power consumption

76439049395. ✖ Absence of effective and efficient eddy current damping

76439049396. ✖ Low torque to weight ratio

Question Number : 150 Question Id : 76439012374 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Current can be measured effectively by making use of

Options :

76439049397. ✔ AC voltmeter

76439049398. ✖ DC voltmeter



76439049399. ✖ AC ammeter

76439049400. ✖ DC ammeter

Question Number : 151 Question Id : 76439012375 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

AC voltmeter consists of

Options :

76439049401. ✖ Half wave rectifier

76439049402. ✖ Full wave rectifier

76439049403. ✖ Center tap rectifier

76439049404. ✔ Bridge wave rectifier

Question Number : 152 Question Id : 76439012376 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Differential voltmeter is also known as

Options :

76439049405. ✔ Potentiometric voltmeter

76439049406. ✖ Electro static voltmeter

76439049407. ✖ Moving coil

76439049408. ✖ Rectifier type voltmeter

Question Number : 153 Question Id : 76439012377 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Schering bridge is used for

Options :

76439049409. ✖ Low voltages only

76439049410. ✔ Low and high voltages

76439049411. ✖ High voltages

Intermediate voltages

76439049412. ✖

Question Number : 154 Question Id : 76439012378 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Digital multimeter is used for

Options :

Measuring AC voltage and resistance

76439049413. ✖

Measuring DC current and resistance

76439049414. ✖

Measuring AC & DC current, voltage and resistance

76439049415. ✔

Measuring AC current & voltage

76439049416. ✖

Question Number : 155 Question Id : 76439012379 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

In digital frequency meter Schmitt trigger is used to

Options :

Convert DC into square wave

76439049417. ✖

Convert any AC input into stream of pulses

76439049418. ✔

Convert sinusoidal input to square

76439049419. ✖

Convert DC into AC

76439049420. ✖

Question Number : 156 Question Id : 76439012380 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Deflections sensitivity of a CRT \_\_\_\_\_ the distance between the deflecting plates

Options :

Is inversely proportional to

76439049421. ✖

Depends partially on

76439049422. ✖

76439049423. ✘ Does not depend on

76439049424. ✔ Is directly proportional to

**Question Number : 157 Question Id : 76439012381 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0**

The CRT is coated with

**Options :**

76439049425. ✘  $\text{Al}_2\text{O}_3$

76439049426. ✔ Aquadag

76439049427. ✘  $\text{MnO}_2$

76439049428. ✘ Magnesium Flouride

**Question Number : 158 Question Id : 76439012382 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0**

Dual trace oscilloscope consists of \_\_\_\_\_

**Options :**

76439049429. ✘ Two electron guns and a common horizontal deflecting circuitry

76439049430. ✘ Two electron guns

76439049431. ✔ Single electron gun and electronic switching circuitry

76439049432. ✘ Single electron gun and mechanical beam splitting circuitry

**Question Number : 159 Question Id : 76439012383 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0**

The principle of operation of Q-meter is based on

**Options :**

76439049433. ✘ Self inductance

76439049434. ✘ Mutual inductance

76439049435. ✓ Series resonance

76439049436. ✘ Parallel resonance

Question Number : 160 Question Id : 76439012384 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

In XY recorders, the self balancing potentiometers plot EMF as a function of

Options :

76439049437. ✘ Pressure

76439049438. ✘ Time

76439049439. ✓ Another EMF

76439049440. ✘ Frequency

Question Number : 161 Question Id : 76439012385 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A moving coil instrument can be used to measure

Options :

76439049441. ✘ High frequency AC

76439049442. ✘ Both AC&DC

76439049443. ✓ Only for DC

76439049444. ✘ Low frequency AC

Question Number : 162 Question Id : 76439012386 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The operation of the thermocouple is based on

Options :

76439049445. ✘ Peltier effect

76439049446. ✖ Faraday's effect

76439049447. ✖ Thomson effect

76439049448. ✔ Seeback effect

Question Number : 163 Question Id : 76439012387 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Piezo electric transducers are used for measurement of

Options :

76439049449. ✖ Static force

76439049450. ✔ Pressure under dynamic conditions

76439049451. ✖ Pressure under static conditions

76439049452. ✖ Conductivity

Question Number : 164 Question Id : 76439012388 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Hotwire anemometer is used for the measurement of

Options :

76439049453. ✔ Flow rates of fluids

76439049454. ✖ Flow rates of granular solids

76439049455. ✖ Thermal conductivity

76439049456. ✖ Very high temperature

Question Number : 165 Question Id : 76439012389 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

PH meter works on the principle of

Options :

76439049457. ✖ Maxwell's equation

76439049458. ✖ Diffusion

76439049459. ✔ Nernst's equation

76439049460. ✖ Concentration gradient

**Question Number : 166 Question Id : 76439012390 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0**

Which of the following is true for torque measurement?

**Options :**

76439049461. ✖ Measurement of applied force only

76439049462. ✖ Measurement of length of arm

76439049463. ✖ Measurement of velocity of material

76439049464. ✔ Measurement of force and length of the arm

**Question Number : 167 Question Id : 76439012391 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0**

\_\_\_\_\_ and \_\_\_\_\_ are two of the most widely measured parameters in a power plant

**Options :**

76439049465. ✖ Force and temperature

76439049466. ✖ Temperature and humidity

76439049467. ✖ Force and pressure

76439049468. ✔ Pressure and temperature

**Question Number : 168 Question Id : 76439012392 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0**

Which one of the parameter is not used in measurement of thermal power plant?

**Options :**

76439049469. ✖ Accuracy

76439049470. ✖ Precision

76439049471. ✖ Sensitivity

76439049472. ✔ Linearity

Question Number : 169 Question Id : 76439012393 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

In an ON-OFF controller if the error signal  $e(t)$  is greater than zero then its output would be

Options :

76439049473. ✖ 25%

76439049474. ✖ 50%

76439049475. ✖ 75%

76439049476. ✔ 100%

Question Number : 170 Question Id : 76439012394 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A PID control mode has

Options :

76439049477. ✔ Faster response

76439049478. ✖ Slower response

76439049479. ✖ More deadtime

76439049480. ✖ High rise time

Question Number : 171 Question Id : 76439012395 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0



PID controller is also known as

Options :

76439049481. ✘ Two term controller

76439049482. ✔ Three term controller

76439049483. ✘ Proportional controller

76439049484. ✘ Four term controller

Question Number : 172 Question Id : 76439012396 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

In pneumatic controllers \_\_\_\_\_ are used for applying the signals from the sensors

Options :

76439049485. ✘ OP-amps

76439049486. ✔ Bellows

76439049487. ✘ Gears

76439049488. ✘ Piston

Question Number : 173 Question Id : 76439012397 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The force that can act as an actuator is /are

Options :

76439049489. ✘ Static friction forces

76439049490. ✘ Inertia forces

76439049491. ✔ Thrust forces

76439049492. ✘ Static friction forces and Inertia forces

Question Number : 174 Question Id : 76439012398 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical



Correct Marks : 1 Wrong Marks : 0

Cascade control means

Options :

- 76439049493. ✘ One feedback loop
- 76439049494. ✘ Feed forward control
- 76439049495. ✘ ON-OFF control
- 76439049496. ✔ More than one feedback loop

Question Number : 175 Question Id : 76439012399 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The purpose of feed forward control is to

Options :

- 76439049497. ✘ Eliminate the need for feedback control in a process
- 76439049498. ✘ Save energy
- 76439049499. ✔ Reduce the effect of load variation on the process variable
- 76439049500. ✘ Reduce the effect of process variable noise on stability

Question Number : 176 Question Id : 76439012400 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Letter codes not used for process instrumentation

Options :

- 76439049501. ✘ Analysis (A)
- 76439049502. ✘ Conductivity(C)
- 76439049503. ✔ Hysteresis (HA)
- 76439049504. ✘ Density (D)

Question Number : 177 Question Id : 76439012401 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which of the following is an advantage of SSB over DSB?

Options :

- 76439049505. ✘ No change in spectrum space
- 76439049506. ✔ Reduce in spectrum space
- 76439049507. ✘ Carrier is suppressed
- 76439049508. ✘ Power is not wasted on the carrier

Question Number : 178 Question Id : 76439012402 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

When bandwidth is the major consideration a narrow and wide band FM can be approximated to?

Options :

- 76439049509. ✘ DSB-SC
- 76439049510. ✘ SSB
- 76439049511. ✘ VSB
- 76439049512. ✔ AM

Question Number : 179 Question Id : 76439012403 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which factor makes the differentiator circuit unstable?

Options :

- 76439049513. ✘ Output impedance
- 76439049514. ✘ Input voltage
- 76439049515. ✘ Noise
- 76439049516. ✔ Gain

Question Number : 180 Question Id : 76439012404 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Another name for a unity gain amplifier is

Options :

76439049517. ✘ Difference amplifier

76439049518. ✘ Comparator

76439049519. ✘ Single ended

76439049520. ✔ Voltage follower

Question Number : 181 Question Id : 76439012405 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Depending on the value of input and reference voltage a comparator can be named as

Options :

76439049521. ✘ Voltage follower

76439049522. ✘ Digital to analog converter

76439049523. ✘ Schmitt trigger

76439049524. ✔ Voltage level detector

Question Number : 182 Question Id : 76439012406 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The term free running is associated with

Options :

76439049525. ✘ Bistable multi-vibrator

76439049526. ✘ Monostable multi-vibrator

76439049527. ✔ Astable multi-vibrator

76439049528. ✘ Bistable multi-vibrator & Monostable multi-vibrator

Question Number : 183 Question Id : 76439012407 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which instrument is used to amplify output signal of

Options :

76439049529. ✘ Peaking amplifier

76439049530. ✔ Instrumentation amplifier

76439049531. ✘ Differential amplifier

76439049532. ✘ Bridge amplifier

Question Number : 184 Question Id : 76439012408 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

State the reason for thermal shutdown of IC regulator.

Options :

76439049533. ✘ Spikes in temperature

76439049534. ✘ Decrease in temperature

76439049535. ✘ Fluctuation in temperature

76439049536. ✔ Increase in temperature

Question Number : 185 Question Id : 76439012409 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The representation of Beer Lambert's law is given as  $A=abc$ . If 'b' represents distance,

'c' represents concentration and 'A' represents absorption, what does 'a' represent?

Options :

76439049537. ✘ Intensity

76439049538. ✘ Transmittance

76439049539. ✔ Absorptivity

## Admittance

76439049540. ✘

Question Number : 186 Question Id : 76439012410 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

What is the wave length range for UV spectrum of light?

Options :

400nm- 700nm

76439049541. ✘

700nm-1mm

76439049542. ✘

0.01nm- 10nm

76439049543. ✘

10nm- 400nm

76439049544. ✔

Question Number : 187 Question Id : 76439012411 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which of the following is the principle of flame emission photometers?

Options :

Radiation is absorbed by non excited atoms in vapor state and are excited to higher states

76439049545. ✘

Medium absorbs radiation and transmitted radiation is measured.

76439049546. ✘

Color and wavelength of the flame is measured

76439049547. ✔

Only wavelength of the flame is measured

76439049548. ✘

Question Number : 188 Question Id : 76439012412 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

At which angle does a glassplate reflector is set in NPL interferometer?

Options :

30°

76439049549. ✘

45°

76439049550. ✔

76439049551. ✖  $60^0$

76439049552. ✖  $90^0$

Question Number : 189 Question Id : 76439012413 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Separation of ions in mass spectrometer takes place on the basis of which of the following?

Options :

76439049553. ✖ Mass

76439049554. ✖ Charge

76439049555. ✖ Molecular weight

76439049556. ✔ Mass to charge ratio

Question Number : 190 Question Id : 76439012414 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The \_\_\_\_\_ column is used in Gas Chromatographer

Options :

76439049557. ✖ Guard

76439049558. ✖ Separation

76439049559. ✔ Capillary

76439049560. ✖ Analytical

Question Number : 191 Question Id : 76439012415 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which type of radiation is the least penetrating?

Options :

76439049561. ✔ Alpha

76439049562. ✖ Beta

76439049563. ✖ Gamma

76439049564. ✖ Neutron

Question Number : 192 Question Id : 76439012416 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

When nuclear radiations pass through, gas ionization is provided. This is the principle of which of the following detectors?

Options :

76439049565. ✖ Proportional counter

76439049566. ✖ Flow counter

76439049567. ✔ Geiger muller counter

76439049568. ✖ Scintillation counter

Question Number : 193 Question Id : 76439012417 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

8051 microcontroller has address bus size of \_\_\_\_\_

Options :

76439049569. ✖ 8 bit

76439049570. ✖ 12 bit

76439049571. ✔ 16 bit

76439049572. ✖ 20 bit

Question Number : 194 Question Id : 76439012418 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

In the instruction MOV A, @Ro:@ symbol denotes \_\_\_\_\_ addressing mode

Options :



Immediate

76439049573. ✖

Register

76439049574. ✖

Direct

76439049575. ✖

Indirect

76439049576. ✔

Question Number : 195 Question Id : 76439012419 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

8257 denotes \_\_\_\_\_

Options :

PPI

76439049577. ✖

USART

76439049578. ✖

DMAC

76439049579. ✔

PIT

76439049580. ✖

Question Number : 196 Question Id : 76439012420 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

In 8255 PPI, port B is not programmed in which mode

Options :

Mode 0

76439049581. ✖

Mode 1

76439049582. ✖

Mode 2

76439049583. ✔

Mode 3

76439049584. ✖

Question Number : 197 Question Id : 76439012421 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

PLC can be \_\_\_\_\_ in plant to change the sequence of operation

Options :

- 76439049585. ✘ Only programmed
- 76439049586. ✘ Only reprogrammed
- 76439049587. ✔ Programmed and reprogrammed
- 76439049588. ✘ Able to give a set point

Question Number : 198 Question Id : 76439012422 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A good application for a timed interrupt in a PLC program would be:

Options :

- 76439049589. ✘ A communication function lock
- 76439049590. ✔ A PID function block
- 76439049591. ✘ A math function block
- 76439049592. ✘ A motor start/ stop rung

Question Number : 199 Question Id : 76439012423 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The control in SCADA is \_\_\_\_\_

Options :

- 76439049593. ✘ Online control
- 76439049594. ✘ direct control
- 76439049595. ✔ supervisory control
- 76439049596. ✘ Automatic control

Question Number : 200 Question Id : 76439012424 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which of the following protocol allows the instrument to connect to a data logger?

Options :

76439049597. ✘ SDI-10

76439049598. ✔ SDI-12

76439049599. ✘ SAI-10

76439049600. ✘ SAI-12