

Telangana State Council Higher Education

Notations :

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

Question Paper Name :	Electrical and Electronics Engineering 20th May 2023 Shift1 SET1
Subject Name :	Electrical and Electronics Engineering
Creation Date :	2023-05-20 13:03:32
Duration :	180
Total Marks :	200
Display Marks:	No
Share Answer Key With Delivery Engine :	Yes
Actual Answer Key :	Yes
Calculator :	None
Magnifying Glass Required? :	No
Ruler Required? :	No
Eraser Required? :	No
Scratch Pad Required? :	No
Rough Sketch/Notepad Required? :	No
Protractor Required? :	No
Show Watermark on Console? :	Yes
Highlighter :	No
Auto Save on Console?	Yes
Change Font Color :	No
Change Background Color :	No
Change Theme :	No

Help Button :	No
Show Reports :	No
Show Progress Bar :	No

Electrical and Electronics Engineering

Group Number :	1
Group Id :	15920727
Group Maximum Duration :	0
Group Minimum Duration :	180
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	200
Is this Group for Examiner? :	No
Examiner permission :	Cant View
Show Progress Bar? :	No

Mathematics

Section Id :	159207102
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	50
Number of Questions to be attempted :	50
Section Marks :	50
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0

Sub-Section Number : 1
Sub-Section Id : 159207123
Question Shuffling Allowed : Yes
Is Section Default? : null

Question Number : 1 Question Id : 1592075216 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Let $A = \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$. If $A^2 = \alpha A + \beta I$, where I is the 2×2 identity matrix, then $(\alpha, \beta) =$

Options :

1. ✘ (5, 7)

2. ✘ (-5, -7)

3. ✘ (-5, 7)

4. ✔ (5, -7)

Question Number : 2 Question Id : 1592075217 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $(a + b + c) = 5$, then

$$\det \begin{bmatrix} a-b-c & 2b & 2c \\ 2a & b-c-a & 2c \\ 2a & 2b & c-a-b \end{bmatrix} =$$

Options :

- 1. ✘ 5
- 2. ✘ 25
- 3. ✔ 125
- 4. ✘ 625

Question Number : 3 Question Id : 1592075218 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$$\text{If } \begin{bmatrix} 4 & 3 \\ 9 & 7 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 18 \\ 41 \end{bmatrix}, \text{ then } 12x + 10y =$$

Options :

- 1. ✘ 58
- 2. ✔ 56

3. ✖ 54

4. ✖ 52

Question Number : 4 Question Id : 1592075219 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

If $\log_{16} x + \log_4 x + \log_2 x = 7$, then $x =$

Options :

1. ✔ 16

2. ✖ 32

3. ✖ 64

4. ✖ 128

Question Number : 5 Question Id : 1592075220 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

If $\frac{2x^2 - 6x + 5}{x^3 - 6x^2 + 11x - 6} = \frac{A}{x-1} + \frac{B}{x-2} + \frac{C}{x-3}$, then $10A + B + 2C =$

Options :

1. ✘ 5

2. ✘ 7

3. ✔ 9

4. ✘ 11

Question Number : 6 Question Id : 1592075221 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $\log_x (3x^2 + 10x) = 3$, then $x =$

Options :

1. ✘ 3

2. ✔ 5

3. ✘ 7

4. ✘ 9

Question Number : 7 Question Id : 1592075222 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The value of $\sin^2 45^\circ + \sin^2 135^\circ + \sin^2 225^\circ + \sin^2 315^\circ$ is

Options :

1. ✘ 1

2. ✔ 2

3. ✘ 0

4. ✘ 4

Question Number : 8 Question Id : 1592075223 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a $\triangle ABC$, if $a = 3$, $b = 4$ and $\sin A = \frac{3}{4}$, then the angle B =

Options :

1. ✘ 45°

2. ✘ 60°

3. ✓ 90°

4. ✗ 70°

Question Number : 9 Question Id : 1592075224 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$$\sin^2 36^\circ - \sin^2 18^\circ =$$

Options :

1. ✗ $\frac{1}{2}$

2. ✓ $\frac{1}{4}$

3. ✗ $\frac{1}{8}$

4. ✗ 1

Question Number : 10 Question Id : 1592075225 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The period of the function $\cos\left(\frac{5}{3}\right)\sin\left(\frac{2x}{3}\right) + \sin\left(\frac{5}{3}\right)\cos\left(\frac{2x}{3}\right)$ is

Options :

1. ✘ π

2. ✘ 2π

3. ✔ 3π

4. ✘ $\frac{3\pi}{2}$

Question Number : 11 Question Id : 1592075226 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $\cosh x = \frac{5}{4}$, then $\coth 2x =$

Options :

1. ✔ $\frac{17}{15}$

2. ✘ $\frac{5}{3}$

3. ✘ $\frac{15}{17}$

4. ✘ $\frac{3}{5}$

Question Number : 12 Question Id : 1592075227 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

The modulus of the complex number $\frac{2+i}{3-i}$ is

Options :

1. ✘ $\frac{1}{\sqrt{3}}$

2. ✘ 1

3. ✘ $\sqrt{2}$

4. ✔ $\frac{1}{\sqrt{2}}$

Question Number : 13 Question Id : 1592075228 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If the sides of a triangle are 13,7 and 8, then the greatest angle of the triangle is

Options :

1. ✘ $\frac{\pi}{3}$

2. ✘ $\frac{\pi}{2}$

3. ✔ $\frac{2\pi}{3}$

4. ✘ $\frac{3\pi}{2}$

Question Number : 14 Question Id : 1592075229 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If the angles of a triangle are in the ratio of 1: 4: 5 , then the ratio of the greatest side to the smallest side is

Options :

1. ✓ $4:\sqrt{5} - 1$

2. ✗ $5:4$

3. ✗ $\sqrt{5}-1:4$

4. ✗ $4:\sqrt{5}$

Question Number : 15 Question Id : 1592075230 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Number of tangents drawn at a point of the circle is

Options :

1. ✓ One

2. ✗ Two

3. ✗ Three

4. ✗ Many

Question Number : 16 Question Id : 1592075231 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The minimum value of $f(x) = |x - 2| + |x + 2|$ is

Options :

1. ✘ 0

2. ✘ 2

3. ✔ 4

4. ✘ 8

Question Number : 17 Question Id : 1592075232 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The eccentricity of ellipse $\frac{x^2}{16} + \frac{y^2}{4} = 1$ is

Options :

1. ✘ $2\sqrt{3}$

2. ✘ $\sqrt{2}$

3. ✔

$$\frac{\sqrt{3}}{2}$$

4. ✘ $\sqrt{3}$

Question Number : 18 Question Id : 1592075233 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$$\lim_{x \rightarrow \infty} \left(1 + \frac{2}{x}\right)^x =$$

Options :

1. ✘ e

2. ✔ e^2

3. ✘ e^3

4. ✘ e^4

Question Number : 19 Question Id : 1592075234 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$$\frac{d}{dx}(\sqrt{\sin \sqrt{x}}) =$$

Options :

1. ✘ $\frac{1 \sin \sqrt{x}}{4 \sqrt{x}}$

2. ✘ $\frac{1 \cos \sqrt{x}}{6 \sqrt{x}}$

3. ✔ $\frac{1 \cos \sqrt{x}}{4 \sqrt{x} \sqrt{\sin \sqrt{x}}}$

4. ✘ $\frac{1 \cos \sqrt{x}}{2 \sqrt{\sin \sqrt{x}}}$

Question Number : 20 Question Id : 1592075235 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $x = 2\cos t - \cos 2t$, $y = 2\sin t - \sin 2t$, then $\frac{dy}{dx}$ at $t = \frac{\pi}{6}$ is

Options :

1. ✘ 0

2. ✔ 1

3. ✘ $\sqrt{3}$

4. ✘ $\frac{1}{\sqrt{3}}$

Question Number : 21 Question Id : 1592075236 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $y = \cos(x + y)$, then $\frac{dy}{dx} =$

Options :

1. ✘ $\frac{1 - \sin(x + y)}{\cos x + \cos y}$

2. ✘ $\frac{1 + \sin(x + y)}{\cos x - \cos y}$

3. ✘ $\frac{\cos(x + y)}{1 + \sin(x + y)}$

4. ✔ $\frac{-\sin(x + y)}{1 + \sin(x + y)}$

Question Number : 22 Question Id : 1592075237 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The equation of tangent to the curve $xy = 16$ at P (4, 4) is

Options :

1. ✘ $x + y = 2$

2. ✘ $x + y = 4$

3. ✔ $x + y = 8$

4. ✘ $x + y = 16$

Question Number : 23 Question Id : 1592075238 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The maximum value of $f(x) = \left(\frac{1}{x}\right)^x$ is

Options :

1. ✔ $e^{1/e}$

2. ✘ $\left(\frac{1}{e}\right)^e$

3. ✘ $\left(\frac{1}{e}\right)^{\frac{1}{e}}$

4. ✘ e^e

Question Number : 24 Question Id : 1592075239 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $u(x, y, z) = \log(x^3 + y^3 + z^3 - 3xyz)$, then $\frac{\partial u}{\partial x} + \frac{\partial u}{\partial y} + \frac{\partial u}{\partial z} =$

Options :

1. ✘ $\frac{1}{x+y+z}$

2. ✘ $\frac{9}{x+y+z}$

3. ✘ $\frac{6}{x+y+z}$

4. ✔ $\frac{3}{x+y+z}$

Question Number : 25 Question Id : 1592075240 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

$$\text{If } u(x, y) = \log\left(\frac{x^4 + y^4}{x + y}\right), \text{ then } x \frac{\partial u}{\partial x} + y \frac{\partial u}{\partial y} =$$

Options :

1. ✘ 4

2. ✔ 3

3. ✘ 2

4. ✘ 1

Question Number : 26 Question Id : 1592075241 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

$$\int \frac{\sin(\tan^{-1} x)}{1 + x^2} dx =$$

Options :

1. ✔ $-\cos(\tan^{-1} x) + c$

2. ✘ $\cos(\tan^{-1} x) + c$

3. ✘ $\sin(\tan^{-1}x) + c$

4. ✘ $-\sin(\tan^{-1}x) + c$

Question Number : 27 Question Id : 1592075242 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$$\int \frac{1}{e^{2x} + e^x} dx$$

Options :

1. ✘ $\log(e^x + 1) - e^{-x} + c$

2. ✘ $\log\left(\frac{e^x + 1}{e^x}\right) + c$

3. ✔ $\log(e^{-x} + 1) - e^{-x} + c$

4. ✘ $\log\left(\frac{e^{-x}}{e^x + 1}\right) + e^{-x} + c$

Question Number : 28 Question Id : 1592075243 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

The value of the integral $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \sin |x| dx$ is

Options :

1. ✘ 0

2. ✘ 1

3. ✘ -2

4. ✔ 2

Question Number : 29 Question Id : 1592075244 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The curves $y = x^2 - 4$ and $y = 1 - x^2$ together enclose an area of

Options :

1. ✘ $10\sqrt{10}$

2. ✘ $5\sqrt{10}$

3. ✔

$$\frac{10\sqrt{10}}{3}$$

4. ✘ $\frac{10\sqrt{10}}{9}$

Question Number : 30 Question Id : 1592075245 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The RMS value of the $f(x) = \sqrt{\log x}$ on $[1, e]$ is

Options :

1. ✘ $\sqrt{\frac{e}{e-1}}$

2. ✘ $\sqrt{\frac{e-1}{e}}$

3. ✔ $\frac{1}{\sqrt{e-1}}$

4. ✘ $\sqrt{e-1}$

Question Number : 31 Question Id : 1592075246 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The approximate value of the integral $\int_0^1 \frac{1}{1+x} dx$, using Trapezoidal rule with $h = 0.5$, is

Options :

0.69450

1. ✘

0.70834

2. ✔

0.67435

3. ✘

0.68500

4. ✘

Question Number : 32 Question Id : 1592075247 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The velocity of a body as a function of time is given as

$v(t) = 5e^{-2t} + 4$, where t is in seconds and v is in m/s. The acceleration when $t = 5$ in m/s^2 is

Options :

$-10e^{-10}$

1. ✔

2. ✘ $-20e^{-10}$

3. ✘ $-30e^{-10}$

4. ✘ $-40e^{-10}$

Question Number : 33 Question Id : 1592075248 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The order and degree of the differential equation

$$\frac{d^2y}{dx^2} + \left(\frac{dy}{dx}\right)^2 + x = 0 \text{ respectively are}$$

Options :

1. ✘ 3 and 3

2. ✘ 2 and 2

3. ✘ 2 and 3

4. ✔ 2 and 1

Question Number : 34 Question Id : 1592075249 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

The general solution of $ye^x dx + (y-1)dy = 0$ is

Options :

1. ✘ $e^x - \log y = c$

2. ✘ $e^x - y = c$

3. ✘ $e^x - y - \log x = c$

4. ✔ $e^x + y - \log y = c$

Question Number : 35 Question Id : 1592075250 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

If $\sin x \frac{dy}{dx} + y \cos x = x \sin x$, then $(y-1)\sin x =$

Options :

1. ✘ $c - x \sin x$

2. ✘ $c + x \sin x$

3. ✓ $c - x \cos x$

4. ✗ $c + x \cos x$

Question Number : 36 Question Id : 1592075251 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

The solution of the differential equation

$$(e^y + 1)\cos x \, dx + e^y \sin x \, dy = 0 \text{ is}$$

Options :

1. ✓ $(e^y + 1)\sin x = c$

2. ✗ $e^x \sin x = c$

3. ✗ $(e^x + 1)\cos x = c$

4. ✗ $(e^y - 1)\sin x = c$

Question Number : 37 Question Id : 1592075252 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The differential equation satisfied by $y = \frac{A}{x} + B$, (A,B are parameters) is

Options :

1. ✘ $x^2 y_1 = y$

2. ✘ $xy_1 + 2y_2 = 0$

3. ✔ $xy_2 + 2y_1 = 0$

4. ✘ $x^2 y_1 - 2y = 0$

Question Number : 38 Question Id : 1592075253 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The general solution of $\log\left(\frac{dy}{dx}\right) = 3x + 3y$ is

Options :

1. ✘ $e^{3x} + e^{3y} = c$

2. ✘ $e^{-3x} + e^{-3y} = c$

3. ✘ $e^{-3x} + e^{3y} = c$

4. ✔ $e^{3x} + e^{-3y} = c$

Question Number : 39 Question Id : 1592075254 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $y dx + y^2 dy = x dy, x \in \mathbb{R}, y > 0$ and $y(1) = 1$, then $y(-3) =$

Options :

1. ✔ 3

2. ✘ 2

3. ✘ 1

4. ✘ 5

Question Number : 40 Question Id : 1592075255 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$$L\{\sin 2t - 2t \cos 2t\} =$$

Options :

1. ✘ $\frac{2}{(s^2 + 4)^2}$

2. ✘ $\frac{8}{(s^2 + 4)^2}$

3. ✔ $\frac{16}{(s^2 + 4)^2}$

4. ✘ $\frac{32}{((s^2 + 4))^2}$

Question Number : 41 Question Id : 1592075256 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$$L\{\cosh 3t \cos 3t\} =$$

Options :

1. ✘ $\frac{1}{2} \left[\frac{s-6}{s^2 - 3s + 18} + \frac{s+6}{s^2 + 3s + 18} \right]$

2. ✔

$$\frac{1}{2} \left[\frac{s-3}{s^2-6s+18} + \frac{s+3}{s^2+6s+18} \right]$$

3. ✘

$$\frac{1}{2} \left[\frac{s-4}{s^2-4s+9} + \frac{s-3}{s^2-6s+9} \right]$$

4. ✘

$$\frac{1}{2} \left[\frac{s-6}{s^2+9} + \frac{s+6}{3s^2+9} \right]$$

Question Number : 42 Question Id : 1592075257 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$$L \left\{ \frac{1 - \cos 3t}{t} \right\} =$$

Options :

1. ✘

$$\frac{1}{2} \log \left(\frac{s^2+9}{s^2+3} \right)$$

2. ✘

$$\frac{1}{2} \log \left(\frac{s}{s+9} \right)$$

3. ✘

$$\frac{1}{2} \log \left(\frac{s}{s^2+9} \right)$$

4.

✓ $\frac{1}{2} \log \left(\frac{s^2 + 9}{s^2} \right)$

Question Number : 43 Question Id : 1592075258 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The Laplace transform of $f(t) = t \sin t$ is $F(s)$ where $F(s) =$

Options :

1. ✘ $\frac{s}{(1+s^2)^2}$

2. ✘ $\frac{2s}{(1+s^2)^2}$

3. ✘ $\frac{2s}{1+s^2}$

4. ✓ $\frac{s}{1+s^2}$

Question Number : 44 Question Id : 1592075259 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$$\text{If } L^{-1}\left\{\frac{2s^2-1}{(s^2+1)(s^2+4)}\right\} = f(t), \text{ then } f\left(\frac{\pi}{2}\right) =$$

Options :

1. ✘ 1

2. ✔ -1

3. ✘ 2

4. ✘ -2

Question Number : 45 Question Id : 1592075260 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$$\int_0^{\infty} \frac{e^{-3t} - e^{-6t}}{t} dt =$$

Options :

1. ✘ log 6

2. ✘ log 3

3. ✔ log 2

4. ✘ $\log 18$

Question Number : 46 Question Id : 1592075261 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The solution of the differential equation

$$y'' - 2y' + 2y = 0 \text{ satisfying } y(0) = y'(0) = 1 \text{ is}$$

Options :

1. ✘ $e^t + e^{-2t} \cos t$

2. ✘ $e^t + \cos t$

3. ✘ $e^t \sin t$

4. ✔ $e^t \cos t$

Question Number : 47 Question Id : 1592075262 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The value of the Fourier coefficient a_0 in the Fourier series
expansion of $f(x) = x \sin x$ in $(0, 2\pi)$ is

Options :

1. ✘ 2

2. ✔ -2

3. ✘ 1

4. ✘ -1

Question Number : 48 Question Id : 1592075263 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If b_1, b_2 are Fourier coefficients in the Fourier series expansion of
 $f(x) = |\sin x|$ in $(-\pi, \pi)$, then $b_1 + b_2 =$

Options :

1. ✘ $\frac{2}{\pi}$

2. ✘ $-\frac{2}{\pi}$

3. ✔ 0

4. ✘ $\frac{4}{\pi}$

Question Number : 49 Question Id : 1592075264 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

At $x = 0$, the Fourier series of $f(x) = \begin{cases} \pi + x & \text{if } -\pi < x < 0 \\ 0 & \text{if } 0 \leq x < \pi \end{cases}$
converges to

Options :

1. ✘ π

2. ✘ 0

3. ✘ $-\pi$

4. ✔ $\frac{\pi}{2}$

Question Number : 50 Question Id : 1592075265 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

If $x = \frac{\pi}{2} + \sum_{n=1}^{\infty} a_n \cos nx$, $0 < x < \pi$, then the value of a_n is

Options :

$$\frac{2}{\pi n^2} [(-1)^n - 1]$$

1. ✓

$$\frac{2}{\pi n^2}$$

2. ✗

0

3. ✗

$$\frac{4}{\pi n^2}$$

4. ✗

Physics

Section Id :	159207103
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	25
Number of Questions to be attempted :	25
Section Marks :	25
Enable Mark as Answered Mark for Review and Clear Response :	Yes

Maximum Instruction Time : 0
Sub-Section Number : 1
Sub-Section Id : 159207124
Question Shuffling Allowed : Yes
Is Section Default? : null

Question Number : 51 Question Id : 1592075266 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

If F is force, x is distance and t is time, then the dimensions
of $\frac{b}{a}$ in the equation $F = \frac{b-x}{at}$ are same as that of

Options :

1. ✘ Velocity
2. ✘ Force
3. ✔ Momentum
4. ✘ Time

Question Number : 52 Question Id : 1592075267 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

The static friction is

Options :

1. ✘ Equal to the dynamic friction
2. ✔ Always greater than the dynamic friction
3. ✘ Always less than the dynamic friction
4. ✘ Sometimes less than and sometimes equal to dynamic friction

Question Number : 53 Question Id : 1592075268 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A vector A points vertically upward and B points towards north, the vector product of $B \times A$ is

Options :

1. ✘ Along west
2. ✔ Along east
3. ✘ Vertically downward

4. ✘ No direction

Question Number : 54 Question Id : 1592075269 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A Vector A has magnitude $9/2$ unit towards north, the direction
of vector $-6A$ and $8A$.

Options :

1. ✘ -27 units and 36 units towards south

2. ✘ -27 units and 36 units towards north

3. ✔ -27 units towards south and 36 units towards north

4. ✘ -27 units towards west and 36 units towards east

Question Number : 55 Question Id : 1592075270 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The Angular displacement of a particle is described as

$\theta = 2t + 3t^2$, the angular velocity (in rad/sec) at $t = 2$ sec is

Options :

1. ✘ 2

2. ✘ 6

3. ✘ 16

4. ✔ 14

Question Number : 56 Question Id : 1592075271 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The acceleration of a car moving on a straight road with a constant velocity of 40 m/sec is

Options :

1. ✘ 30 m/s²

2. ✘ 20 m/s²

3. ✔ 0 m/s²

4. ✘ 40 m/s^2

Question Number : 57 Question Id : 1592075272 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Two wires of same length and made with same material are stretched with the same force. If the radii of the wires are in the ratio 1:3, then the ratio of their elongations is

Options :

1. ✘ 1:3

2. ✔ 9:1

3. ✘ 3:1

4. ✘ 1:9

Question Number : 58 Question Id : 1592075273 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Along a stream line flow of fluid

Options :

The velocity of all fluid particles at a given instant is constant.

1. ✘

The velocity of a fluid particle remains constant.

2. ✘

The velocity of all fluid particles crossing a given position is constant.

3. ✔

The speed of a fluid particle remains constant.

4. ✘

Question Number : 59 Question Id : 1592075274 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following gives the relation between C_p and C_v

Options :

1. ✔ $C_p - C_v = R$

2. ✘ $C_p = C_v$

3. ✘ $C_p - C_v > R$

4. ✘ $C_p / C_v = R$

Question Number : 60 Question Id : 1592075275 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Compressed air coming out of punctured football becomes cooler because.

Options :

1. ✔ Adiabatic expansion

2. ✘ Isothermal expansion

3. ✘ Energy dissipation

4. ✘ See-beck effect

Question Number : 61 Question Id : 1592075276 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The work done (Joule) by a 1 mole of a perfect gas when it expands isothermally to double its volume. The initial temperature of the gas is 0°C and $R = 8.31 \times 10^7 \text{ erg} \cdot \text{mol}^{-1} \cdot \text{K}^{-1}$. ($\log_{10} 2 = 0.3010$)

Options :

1. ✘ 15.72 joule
2. ✘ 157.2 joule
3. ✔ 1572 joule
4. ✘ 1.572 joule

Question Number : 62 Question Id : 1592075277 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The energy possessed by an object, by virtue of its motion is termed as

Options :

1. ✘ Potential Energy
2. ✔ Kinetic Energy
3. ✘ Gravitational Energy
4. ✘ Nuclear Energy

Question Number : 63 Question Id : 1592075278 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

At what speed the observer must move towards a stationary source so that the apparent frequency will be double the original frequency of the source? The velocity of sound is V .

Options :

1. ✓ V

2. ✗ $\frac{V}{2}$

3. ✗ $2V$

4. ✗ $\frac{V}{4}$

Question Number : 64 Question Id : 1592075279 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The displacement equation of a particle executes SHM is given by $y = a \sin \omega t + b \cos \omega t$, the resultant amplitude is

Options :

1. ✓ $(a^2 + b^2)^{1/2}$

2. ✗ $(a + b)$

3. ✗ $(a + b)^{1/2}$

4. ✗ Zero

Question Number : 65 Question Id : 1592075280 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The periodic time (T) of simple pendulum is observed for different lengths (L). If a graph of $\log_{10}L$ against $\log_{10}T$ is plotted, the slope of the graph will be

Options :

1. ✗ $1/2$

2. ✗ $-1/2$

3. ✗ $(2)^{1/2}$

4. ✓ 2

Question Number : 66 Question Id : 1592075281 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The maximum velocity of a particle performing SHM is 0.12 m/sec, if its maximum acceleration is 0.48 m/sec^2 , then its time period (sec) is

Options :

1. ✗ 1.54

2. ✗ 1.59

3. ✓ 1.57

4. ✗ 1.75

Question Number : 67 Question Id : 1592075282 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The minimum energy required to take out an electron from an alkali metal is called

Options :

1. ✘ Kinetic Energy
2. ✘ Potential Energy
3. ✘ Gibbs Free Energy
4. ✔ Work Function

Question Number : 68 Question Id : 1592075283 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

N_1 and N_2 be the number of atoms in the ground and excited states. Then the condition for population inversion is

Options :

1. ✘ $N_1 = N_2$
2. ✘ $N_1 > N_2$
3. ✔ $N_2 > N_1$
4. ✘ $N_2 = 0$

Question Number : 69 Question Id : 1592075284 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Two magnets have magnetic moments in the ratio 2:1. Their pole strengths are in the ratio 1:2. Then the ratio of their magnetic lengths is

Options :

1. ✘ 1:4

2. ✘ 1:1

3. ✘ 2:3

4. ✔ 4:1

Question Number : 70 Question Id : 1592075285 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The susceptibility of para magnetic material is

Options :

1. ✔ Positive and small

2. ✘ Positive and large

3. ✘ Negative

4. ✘ Zero

Question Number : 71 Question Id : 1592075286 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

There are three equal resistors, how many different combinations of these resistors are possible.

Options :

1. ✔ Four

2. ✘ Two

3. ✘ Three

4. ✘ Five

Question Number : 72 Question Id : 1592075287 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which one of the following is the perfect diamagnetic?

Options :

1. ✘ Any conductor
2. ✘ P-Type semiconductor
3. ✘ N-Type semiconductor
4. ✔ Superconductor

Question Number : 73 Question Id : 1592075288 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The current in the PN junction diode during the reverse bias is the result of

Options :

1. ✘ Majority carriers
2. ✔ Minority carriers
- 3.

✘ Both majority and minority carriers

4. ✘ Only electrons

Question Number : 74 Question Id : 1592075289 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following has maximum energy gap?

Options :

1. ✔ Insulators

2. ✘ Superconductors

3. ✘ Metals

4. ✘ Semiconductors

Question Number : 75 Question Id : 1592075290 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is true for Fermi energy level for p-type
extrinsic semiconductor?

Options :

1. ✘ At middle of the band gap
2. ✔ Close to valence band
3. ✘ Close to conduction band
4. ✘ Fermi level does not exist

Chemistry

Section Id :	159207104
Section Number :	3
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	25
Number of Questions to be attempted :	25
Section Marks :	25
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	159207125
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 76 Question Id : 1592075291 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The values of Azimuthal and principal quantum numbers respectively for an electron that is present in 4d orbital

Options :

1. ✘ 1 and 4

2. ✘ 4 and 1

3. ✔ 2 and 4

4. ✘ 4 and 2

Question Number : 77 Question Id : 1592075292 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following molecule has ionic bonding?

Options :

1. ✘ CH_3Cl

2. ✘ CH_3OH

3. ✘ CO_2

4. ✔ MgO

Question Number : 78 Question Id : 1592075293 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

What is the Oxidation number of carbon in formaldehyde?

Options :

1. ✘ -4

2. ✘ +4

3. ✔ 0

4. ✘ +2

Question Number : 79 Question Id : 1592075294 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

The Molarity of a solution containing 9 g of glucose (molar mass 180) in 500 g of water is

Options :

1. ✘ 0.5

2. ✔ 0.1

3. ✘ 0.2

4. ✘ 1.0

Question Number : 80 Question Id : 1592075295 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Prussian blue colloid is

Options :

1. ✘ As_2S_3

2. ✘ $\text{Fe}(\text{OH})_3$

3. ✔ $\text{KFe}[\text{Fe}(\text{CN})_6]$

4. ✘ FeCl_3

Question Number : 81 Question Id : 1592075296 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

Which of the following anions is the strongest base?

Options :

1. ✓ ClO^-

2. ✗ ClO_2^-

3. ✗ ClO_3^-

4. ✗ ClO_4^-

Question Number : 82 Question Id : 1592075297 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The pH of 10^{-9} molar solution of HCl is

Options :

1. ✗ 9

-9

2. ✗

3. ✗ Between 7 & 8

4. ✓ Between 6 & 7

Question Number : 83 Question Id : 1592075298 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which one of the following is a Renewable energy source?

Options :

1. ✘ Petroleum

2. ✘ Coal

3. ✘ Natural gas

4. ✓ Wind mills

Question Number : 84 Question Id : 1592075299 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following gas is responsible for depletion of ozone layer
in the atmosphere?

Options :

1. ✘ CH_2Cl_2

2. ✔ CF_2Cl_2

3. ✘ CH_2F_2

4. ✘ CO_2

Question Number : 85 Question Id : 1592075300 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The exhausted permutit is regenerated by percolating through it a solution of

Options :

1. ✘ Calcium chloride

2. ✘ Zinc chloride

3. ✔ Sodium chloride

4. ✘ Magnesium chloride

Question Number : 86 Question Id : 1592075301 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

During reverse osmosis:

Options :

1. ✘ Dissolved salts are pushed out through semipermeable membrane
2. ✘ Only dissolved ionic salts are pushed out through the semipermeable membrane
3. ✔ Pure water is pushed out through semipermeable membrane
4. ✘ Both water and dissolved salts are pushed out through the semipermeable membrane

Question Number : 87 Question Id : 1592075302 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is a weak electrolyte?

Options :

1. ✘ HCl
2. ✘ NaOH

3. ✓ CH_3COOH

4. ✗ H_2SO_4

Question Number : 88 Question Id : 1592075303 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

When 2 amperes of current is passed through CuSO_4 solution for 10 minutes, the amount of Cu deposited is (Atomic weight of Cu = 63.5 g)

Options :

1. ✗ 3.94 g

2. ✓ 0.394 g

3. ✗ 0.788 g

4. ✗ 7.88 g

Question Number : 89 Question Id : 1592075304 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Composition of Nichrome alloy is

Options :

1. ✘ Ni:68%, Cu:27%, Fe:5%

2. ✔ Ni:78%, Cr:20%, Fe:2%

3. ✘ Ni:40%, Cu:60%

4. ✘ Al:95%, Cu:2%, Ni:1%

Question Number : 90 Question Id : 1592075305 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In the froth flotation method, pine oil

Options :

1. ✘ Increases the surface tension of the solution

2. ✘ Acts as a collector

3. ✘ Does not affect the surface tension of the solution

4. ✔ Decreases the surface tension of the solution

Question Number : 91 Question Id : 1592075306 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

During electro chemical corrosion in acidic environment

Options :

1. ✓ Hydrogen evolution takes place
2. ✗ Oxygen evolution takes place
3. ✗ Oxygen absorption occurs
4. ✗ Hydrogen absorption takes place

Question Number : 92 Question Id : 1592075307 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The process of coating of Iron with Zinc metal is known as

Options :

1. ✓ Galvanizing
2. ✗

Sherardizing

3. ✘ Zincing

4. ✘ Tinning

Question Number : 93 Question Id : 1592075308 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Bakelite is prepared by the condensation polymerization of

Options :

1. ✔ Phenol and formaldehyde

2. ✘ Urea and formaldehyde

3. ✘ Phenol and acetaldehyde

4. ✘ Urea and acetone

Question Number : 94 Question Id : 1592075309 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The trade name of the polymer coated on non-stick utensils is

Options :

1. ✘ Dacron

2. ✘ Orlon

3. ✔ Teflon

4. ✘ Nylon

Question Number : 95 Question Id : 1592075310 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Octane number of a petrol that consists 20:80 mixture of n-heptane and 2,2,4-trimethyl pentane is

Options :

1. ✘ 100

2. ✘ Zero

3. ✔ 80

4. ✘ 20

Question Number : 96 Question Id : 1592075311 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Producer gas is a mixture of

Options :

1. ✘ $\text{CO}_2 + \text{H}_2$

2. ✔ $\text{CO} + \text{N}_2$

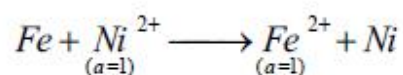
3. ✘ $\text{CO} + \text{CH}_4$

4. ✘ $\text{CH}_4 + \text{H}_2$

Question Number : 97 Question Id : 1592075312 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

For the following cell reaction



The EMF of the cell at 298 K is ($\overset{\circ}{E}_{\text{Fe}^{2+}/\text{Fe}} = -0.440 \text{ V}$; $\overset{\circ}{E}_{\text{Ni}^{2+}/\text{Ni}} = -0.250 \text{ V}$)

Options :

1. ✘ -0.190 V

2. ✓ + 0.190 V

3. ✗ + 0.690 V

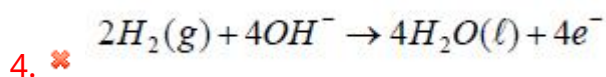
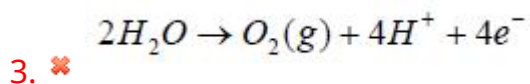
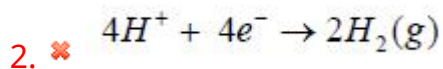
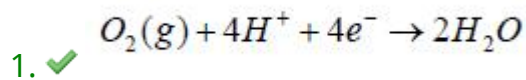
4. ✗ - 0.690 V

Question Number : 98 Question Id : 1592075313 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In Hydrogen-Oxygen fuel cell, the reaction at the cathode is

Options :



Question Number : 99 Question Id : 1592075314 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following statements is true about SMOG?

Options :

1. ✘ SMOG is derived from the fog
2. ✘ SMOG is derived from smoke
3. ✘ SMOG is derived from water vapour
4. ✔ SMOG is derived from both fog and smoke

Question Number : 100 Question Id : 1592075315 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What do BOD and COD stand for?

Options :

1. ✔ Biological Oxygen Demand and Chemical Oxygen Demand respectively
2. ✘ Chemical Oxygen Demand and Biological Oxygen Demand respectively
3. ✘ Botanical Oxygen Demand and Chemical Oxygen Demand respectively

4. ✖ Basic Oxygen Demand and Chemical Oxygen Demand respectively

Electrical and Electronics Engineering

Section Id :	159207105
Section Number :	4
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	100
Number of Questions to be attempted :	100
Section Marks :	100
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	159207126
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 101 Question Id : 1592075316 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

A set of three resistors of 1Ω each is connected in series with a set of three parallel resistors of 1Ω each. The equivalent conductance of the total set is

Options :

1.

✓ 0.3 Ω

2. ✗ 10/3 Ω

3. ✗ 1/3 Ω

4. ✗ 4/3 Ω

Question Number : 102 Question Id : 1592075317 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If R₁, R₂ and R₃ are three resistances connected in delta, one of the conductances in
star is

Options :

1. ✗ $R_3 / (R_1 R_2 + R_2 R_3 + R_3 R_1)$

2. ✗ $(R_1 + R_2) / (R_3)^2$

3. ✗ $(R_1 + R_2 + R_3) / (R_1 + R_2)^2$

4. ✓ $(R_1 + R_2 + R_3) / (R_1 R_2)$

Question Number : 103 Question Id : 1592075318 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The effective capacitance of a parallel plate capacitor which consists of 3 plates is 'C'.

If distance of separation between two adjacent plates is doubled, then the equivalent capacitance

Options :

1. ✓ Is halved

2. ✗ Is tripled

3. ✗ Will remain same

4. ✗ Is doubled

Question Number : 104 Question Id : 1592075319 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The field strength 'H' at each end of a long solenoid of length 'L', number of turns

'N' and current 'I' is

Options :

1. ✘ $H = 2NI/L$

2. ✘ $H = 0$

3. ✔ $H = NI/2L$

4. ✘ $H = NI/L$

Question Number : 105 Question Id : 1592075320 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The assumption of sign convention while using Kirchoff's voltage law in a closed circuit is

- a. Voltage drop is negative in the opposite direction of current
- b. Voltage drop is positive in the opposite direction of current
- c. Voltage drop is positive in the same direction of current
- d. Voltage drop is negative in the same direction of current

Options :

1. ✘ (a) and (c) are true

2. ✘ (b) and (d) are false

3. ✘ (b) is true and (c) is false

4. ✔ (b) and (d) are true

Question Number : 106 Question Id : 1592075321 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

One unit (kWh) of energy is equal to

Options :

1. ✘ 36×10^4 watt-sec

2. ✔ 36×10^5 watt-sec

3. ✘ 36×10^6 Joules

4. ✘ 36×10^3 Joules

Question Number : 107 Question Id : 1592075322 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Watt-hour efficiency of a cell is defined as

Options :

1. ✓ $(\text{Ampere hrs. of discharge} \times \text{Average discharge voltage}) / (\text{Ampere hrs. of charge} \times \text{Average charge voltage})$

2. ✘ $(\text{Ampere hrs. of discharge} \times \text{Average charge voltage}) / (\text{Ampere hrs. of charge} \times \text{Average discharge voltage})$

3. ✘ $(\text{Ampere hrs. of charge} \times \text{Average discharge voltage}) / (\text{Ampere hrs. of discharge} \times \text{Average charge voltage})$

4. ✘ $(\text{Ampere hrs. of charge} \times \text{Average charge voltage}) / (\text{Ampere hrs. of discharge} \times \text{Average discharge voltage})$

Question Number : 108 Question Id : 1592075323 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Thermal efficiency of a 1000 W, 220 V electric-heater is 84%. How long will it take 3 liters of water to heat from 20⁰C to 100⁰C, assuming mechanical equivalent of heat is 4.2 J/cal.

Options :

1. ✓ 20 minutes

2. ✘ 30 minutes

3. ✘ 25 minutes

4. ✘ 15 minutes

Question Number : 109 Question Id : 1592075324 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is not a property of Magnetite?

Options :

1. ✘ Its magnetic property is similar to iron

2. ✘ It has very high resistivity

3. ✘ It has lower initial permeability compared to nickel-iron alloy

4. ✓ It is not a semi-conductor

Question Number : 110 Question Id : 1592075325 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

Identify the wrong statement with respect to Megger?

Options :

1. ✓ The readings of the Megger are depending on the speed of the self contained generator.
2. ✘ The deflecting of the moving system depends on the ratio of the currents in the coils.
3. ✘ The deflecting of the moving system is independent of the applied voltage.
4. ✘ The moving system contains two coils which are placed 90^0 apart.

Question Number : 111 Question Id : 1592075326 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

A Moving Coil milli -Ammeter having a resistance of 10Ω gives full scale deflection when a current of 5 mA is passed through it. The series resistance required for this instrument to measure a voltage of 5 Volts is

Options :

1. ✘ 1000 Ω

2. ✘ 980 Ω

3. ✔ 990 Ω

4. ✘ 1990 Ω

Question Number : 112 Question Id : 1592075327 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Assertion (A) : No power is consumed by the potentiometer under balanced conditions

Reason (R) : The potentiometer makes use of a balance or null condition for measuring unknown voltages.

Options :

1. ✘ A is true, but R is false

2. ✔ Both A and R are true

3. ✘ A is false, but R is true

4. ✘ Both A and R are false

Question Number : 113 Question Id : 1592075328 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is not the characteristic of LVDT?

Options :

1. ✘ Passive transducer

2. ✘ Output of LVDT is in the form of linear displacement of core

3. ✘ LVDT has two secondary windings

4. ✔ LVDT is not affected by stray magnetic fields

Question Number : 114 Question Id : 1592075329 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The Schmitt trigger used in a digital frequency meter

Options :

1. ✘

Provides time base

2. ✘ Amplifies the sinusoidal waveform

3. ✔ Converts signal into square wave pulses

4. ✘ Converts signal into triangular pulses

Question Number : 115 Question Id : 1592075330 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following effect is not used in the operation of Ammeters?

Options :

1. ✘ Induction effect

2. ✘ Heating effect

3. ✘ Hall effect

4. ✔ Electrostatic effect

Question Number : 116 Question Id : 1592075331 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If 'Y_b' is back pitch and 'Y' is winding pitch, then front pitch 'Y_f' for a progressive simplex winding is given by

Options :

1. ✘ $Y_f = Y + Y_b$ for lap winding
2. ✘ $Y_f = Y + Y_b$ for wave winding
3. ✔ $Y_f = Y - Y_b$ for wave winding
4. ✘ $Y_f = Y - Y_b$ for lap winding

Question Number : 117 Question Id : 1592075332 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

An 8-pole, lap wound dc generator has 720 armature conductors and brushes are given a lead of 2 mechanical degrees. If full load current is 960 A, calculate demagnetizing ampere turns per pole.

Options :

1. ✘ 5400 AT

2. ✘ 492 AT

3. ✘ 4920 AT

4. ✔ 480 AT

Question Number : 118 Question Id : 1592075333 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following dc generators has a poor voltage regulation?

Options :

1. ✘ Over Compound generator

2. ✘ Shunt generator

3. ✔ Differential compound generator

4. ✘ Under Compound generator

Question Number : 119 Question Id : 1592075334 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

Match the following dc generator with their applications.

(a)	Compound generator	(i)	Voltage boosters
(b)	Shunt generator	(ii)	Constant dc voltage power supply
(c)	Series generator	(iii)	Battery charging

Options :

(a)– (ii); (b) – (i); (c) – (iii)

1. ✘

(a)– (ii); (b) – (iii); (c) – (i)

2. ✔

(a)– (i); (b) – (iii); (c) – (ii)

3. ✘

(a)– (i); (b) – (ii); (c) – (iii)

4. ✘

Question Number : 120 Question Id : 1592075335 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The armature torque Vs armature current variation in a dc series motor is

Options :

1. ✓ Linear when machine is saturated
2. ✗ Non-linear when machine is saturated
3. ✗ Linear when machine is unsaturated
4. ✗ Constant when machine is unsaturated

Question Number : 121 Question Id : 1592075336 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A dc shunt motor is started with a 3-point starter. The No-volt release (NVR) coil can be demagnetized during speed control when resistance in series with

Options :

1. ✗ Field winding is decreased
2. ✓ Field winding is increased

3. ✘ Armature winding is increased

4. ✘ Armature winding is decreased

Question Number : 122 Question Id : 1592075337 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If B_{max} is maximum flux density and f is frequency of flux reversals in a dc motor then,
the ratio of eddy current loss W_e to hysteresis loss W_h is proportional to

Options :

1. ✘ $B_{max}^{-0.4} f$

2. ✘ $\frac{B_{max}^{-0.4}}{f}$

3. ✔ $B_{max}^{0.4} f$

4. ✘ $\frac{B_{max}^{0.4}}{f}$

Question Number : 123 Question Id : 1592075338 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

A dc generator is mechanically coupled to a dc motor. The output readings on generator side are 40 A and 400 V. If the total losses in generator are 4000 W and efficiency of motor is 80% then approximate electrical input of motor is

Options :

1. ✘ 20 kW

2. ✘ 31.25 kW

3. ✘ 24 kW

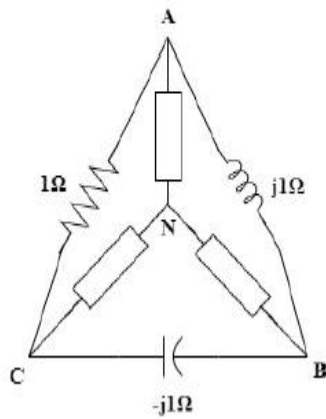
4. ✔ 25 kW

Question Number : 124 Question Id : 1592075339 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The following figure shown in Delta configuration is converted into Star configuration,

the nature of elements across AN, BN and CN respectively are



Options :

1. ✘ Inductance, Capacitance and Resistance
2. ✘ Resistance , Inductance and Capacitance
3. ✘ Capacitance , Resistance and Inductance
4. ✔ Inductance, Resistance and Capacitance

Question Number : 125 Question Id : 1592075340 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A particular wave consists of two components D.C and A.C. A D.C quantity magnitude is two times that of maximum value of A.C quantity. The r.m.s value of the wave is _____ times that of maximum value of A.C quantity

Options :

1. ✘ $1/(\sqrt{2})$

2. ✔ $3/(\sqrt{2})$

3. ✘ $5/(\sqrt{2})$

4. ✘ $3/2$

Question Number : 126 Question Id : 1592075341 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Identify the Correct Statements from the following with respect to R-L-C series circuit under resonance conditions?

- A. Power factor of the circuit is unity
- B. All the applied voltage appears across L or C
- C. Current in the circuit is maximum
- D. At half power frequencies, the power factor angle of the circuit is 45°

Options :

1. ✘ A, B and C

2. ✘ B, C and D

3. ✔ C, D and A

4. ✘ D, A and B

Question Number : 127 Question Id : 1592075342 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Match the following with respect to measurement of power in a 3-phase circuit using two wattmeter method (W_1 and W_2 are the readings of the watt meters)

Readings of the Watt meters

Power factor of the load

L) $W_1 = 0$ and $W_2 = WT$

P) 0.866

M) $W_1 = -W_2$

Q) zero

N) $W_1 = 2W_2$

R) Unity

S) 0.5

Options :

1. ✘ L ---- S ; M---- P; N----R

2. ✔ L ---- S ; M---- Q; N----P

3. ✘ L ---- Q ; M---- P; N----R

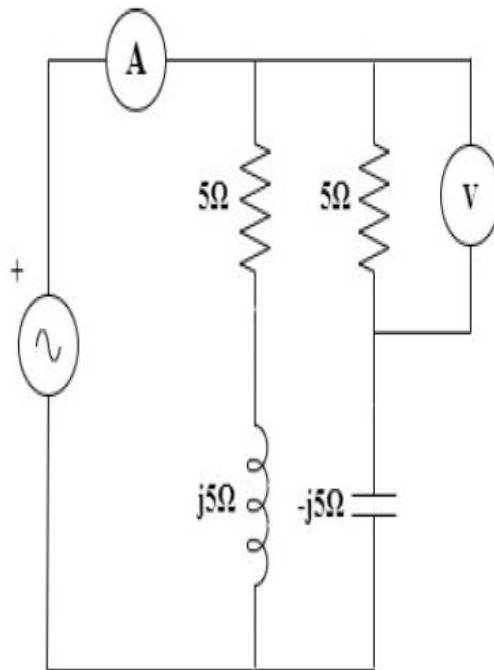
4. ✘ L ---- Q ; M---- R; N----P

Question Number : 128 Question Id : 1592075343 Question Type : MCQ Option Shuffling : Yes
 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In the circuit shown below, the voltmeter reads 100 Volts. The reading of the Ammeter

will be



Options :

1. ✓ $20\sqrt{2}$ A

2. ✗ 20 A

3. ✗ 10 A

4. ✗ Zero

Question Number : 129 Question Id : 1592075344 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

For which of the following combination of the circuit elements, the average power drawn from the a.c supply will be zero?

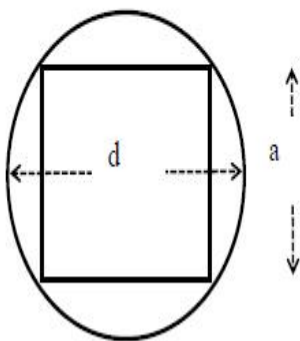
Options :

1. ✘ Pure resistance
2. ✘ R-L series combination
3. ✘ R-C parallel combination
4. ✔ L-C parallel combination

Question Number : 130 Question Id : 1592075345 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a Core type of transformer, where square core is used and circle represent tubular former carrying coils, if the maximum gross core is $0.5d^2$ then, the side 'a' of square is



Options :

- 1.

✘ 0.85d

2. ✘ 0.50d

3. ✔ 0.71d

4. ✘ 0.90d

Question Number : 131 Question Id : 1592075346 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

While conducting open circuit test on a 1- Φ transformer to get more accurate readings, the meters are to be connected in the following sequence starting from supply side.

Options :

1. ✘ Voltmeter, Ammeter and Wattmeter

2. ✘ Ammeter, Wattmeter and Voltmeter

3. ✘ Wattmeter, Voltmeter and Ammeter

Voltmeter, Wattmeter and Ammeter

4. ✓

Question Number : 132 Question Id : 1592075347 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The maximum efficiency of a 1- Φ transformer is 97% which occurs at 90% of full-load

kVA at 0.8 p.f. If power factor is 0.9, the maximum efficiency at same load is

Options :

1. ✓ More than 97%

2. ✘ Between 91%- 96%

3. ✘ Equal to 97%

4. ✘ Less than 90%

Question Number : 133 Question Id : 1592075348 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

All-day efficiency of a distribution transformer is equal to commercial efficiency at a load less than full-load kVA and at a particular power factor less than upf. When it is operated at _____ for all 24 hrs. of the day.

Options :

1. ✘ Same kva load & u.p.f
2. ✔ Same kva load & same p.f
3. ✘ Full-load kva & same p.f
4. ✘ Full-load kva & u.p.f

Question Number : 134 Question Id : 1592075349 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A delta/delta, 3- Φ , 50 Hz, 200 kVA transformer is connected as open-delta. Then its rating will be reduced by approximately

Options :

1. ✘ 133.3 kVA

2. ✘ 115.5 kVA

3. ✔ 84.5 kVA

4. ✘ 66.7 kVA

Question Number : 135 Question Id : 1592075350 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a 3- Φ alternator, the magnetic poles are located in

Options :

1. ✘ Stator and excited by ac source

2. ✘ Stator and excited by dc source

3. ✘ Rotor and excited by ac source

4. ✔ Rotor and excited by dc source

Question Number : 136 Question Id : 1592075351 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A small 1- Φ 110 V, 50 Hz alternator has resistive drop of 10 V and a large reactive drop of 50 V at u.p.f. The voltage regulation up is

Options :

1. ✓ 18.2%

2. ✗ 15.4%

3. ✗ 9.1%

4. ✗ 36.4%

Question Number : 137 Question Id : 1592075352 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following conditions are indicated by Synchroscope during parallel operation of two 3- Φ alternators

Options :

1. ✗

Same terminal voltages & phase rotation

2. ✓ Same phase rotation & frequency

Same frequency & ratings

3. ✗

Same ratings & terminal voltages

4. ✗

Question Number : 138 Question Id : 1592075353 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a poly phase synchronous motor, the damper winding is used in order to

Options :

1. ✗ Provide a cylindrical structure to reduce wind friction

2. ✓ Provide a starting torque

3. ✗ Obtain mechanical balance in the rotor structure

4. ✗

Accelerate the hunting phenomenon

Question Number : 139 Question Id : 1592075354 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

Assuming negligible losses, the load angle of a synchronous condenser is

Options :

1. ✘ 45°

2. ✘ 90°

3. ✔ 0°

4. ✘ 180°

Question Number : 140 Question Id : 1592075355 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

A 3-phase squirrel cage Induction motor having a rated slip of 4 % on full load has a starting torque equal to the full load torque. The starting current is ___ times that of full load current

Options :

1. ✓ Five
2. ✗ Twenty five
3. ✗ Two
4. ✗ Four

Question Number : 141 Question Id : 1592075356 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a 3-phase Induction Motor, maximum torque is twice the full load torque and starting torque is 1.6 times the full load torque. The slip corresponding to maximum torque is

Options :

1. ✗ 0.8
2. ✓ 0.5
- 3.

0.4



0.2

4. ✘

Question Number : 142 Question Id : 1592075357 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following statements are correct, when a load on 3-phase Induction Motor is increased from no load to full load?

- a. Efficiency of motor increases
- b. Slip decreases
- c. Power factor decreases
- d. Torque increases

Options :

1. ✘ a and b

2. ✘ b and c

3. ✘ c and d

4. ✔

d and a

Question Number : 143 Question Id : 1592075358 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The power input to a 3- phase Induction Motor is 60 KW. The stator losses are 1 KW.

The rotor copper loss per phase, if the motor is running with a slip of 4 % is

Options :

1. ✓ 787 W

2. ✗ 2360 W

3. ✗ 927 W

4. ✗ 624 W

Question Number : 144 Question Id : 1592075359 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Assertion (A): The pull out torque of a double cage Induction Motor is smaller than that of single phase Induction Motor.

Reason (R): The two cages of double cage Induction Motor produce the maximum torque at different speeds

Options :

1. ✘ A is true, but R is false
2. ✘ A is false, but R is true
3. ✔ Both A and R are true
4. ✘ Both A and R are false

Question Number : 145 Question Id : 1592075360 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The compensating winding used in A.C Series Motor to

Options :

1. ✘ Increase armature reactance
2. ✔

Reduce the sparking at the brushes

3. ✘ Increase the starting torque

Increase the running torque

4. ✘

Question Number : 146 Question Id : 1592075361 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following motor is most suitable for a computer drive?

Options :

1. ✘ Shaded pole motor

2. ✘ Reluctance motor

3. ✘ Hysteresis motor

Stepper motor

4. ✔

Question Number : 147 Question Id : 1592075362 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

Choose the wrong statement from the following on thermal power station

Options :

1. ✘ Condenser is connected between Circulating water pumps & Condensate extract pump

2. ✘ Boiler feed pump is connected between LP heaters & HP heaters

3. ✘ LP heaters are connected between Condensate extract pump & Boiler feed pump

4. ✔ HP heaters are connected between Condensate extract pump & Boiler feed pump

Question Number : 148 Question Id : 1592075363 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The increasing order of specific speeds of two different turbines is

Options :

1. ✓ Francis turbine, Kaplan turbine

2. ✘ Francis turbine, Pelton wheel

3. ✘ Kaplan turbine, Francis turbine

4. ✘ Kaplan turbine, Pelton wheel

Question Number : 149 Question Id : 1592075364 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Match the following components of Nuclear plant with their materials.

(a)	Fuel	(i)	Plutonium
(b)	Control rods	(ii)	Helium
(c)	Coolant	(iii)	Cadmium

Options :

1. ✘ (a) – (iii); (b) – (ii); (c) – (i)

2. ✘ (a) – (i); (b) – (ii); (c) – (iii)

(a) – (iii); (b) – (i); (c) – (ii)

3. ✘

(a) – (i); (b) – (iii); (c) – (ii)

4. ✔

Question Number : 150 Question Id : 1592075365 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Normally how many blades are in a wind mill?

Options :

1. ✘ Seven

2. ✘ Six

3. ✔ Three

4. ✘ Four

Question Number : 151 Question Id : 1592075366 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The input and output of Regenerator in Gas turbine power plant are _____
respectively.

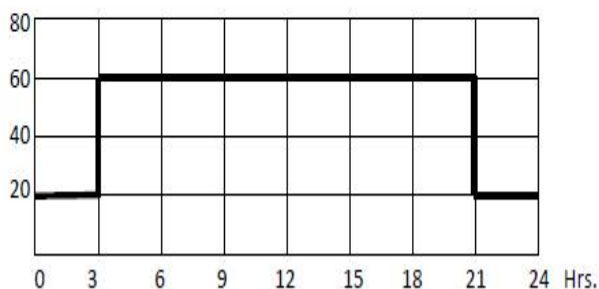
Options :

1. ✘ Cold air & Exhaust gases
2. ✔ Exhaust gases & Hot air
3. ✘ Hot air & Exhaust gases
4. ✘ Exhaust gases & Cold air

Question Number : 152 Question Id : 1592075367 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A typical daily load curve in MW of a power station is shown in figure. What is its peak load?



Options :

1. ✘ 20 MW

2. ✘ 40 MW

3. ✔ 60 MW

4. ✘ 80 MW

Question Number : 153 Question Id : 1592075368 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

For a given transmission Voltage, Power, Power loss, Power factor & Resistivity, the volume of conductor required is proportional to

Options :

1. ✘ Line length

2. ✘ $1/(\text{Line length})$

3. ✘ $1/(\text{Line length})^2$

4. ✔ $(\text{Line length})^2$

Question Number : 154 Question Id : 1592075369 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Choose the most appropriate condition for transmission of power by over-head (OH) system / under-ground (UG) system

Options :

1. ✘ In UG system, the comparison is to be made on the basis of maximum voltage between earth and neutral.

2. ✘ In OH system, the comparison is to be made on the basis of maximum potential difference between two conductors.

3. ✔ In OH system, the comparison is to be made on the basis of maximum voltage between conductor and earth.

4. ✘ In UG system, the comparison is to be made on the basis of maximum voltage between conductor and earth.

Question Number : 155 Question Id : 1592075370 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The conductor material used for transmission and distribution of electric power should have the following properties

Options :

1. ✘ Low tensile strength & high specific gravity
2. ✔ High tensile strength & low specific gravity
3. ✘ High tensile strength & high specific gravity
4. ✘ Low tensile strength & low specific gravity

Question Number : 156 Question Id : 1592075371 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Due to Carona effect

Options :

1. ✔ Electrostatic stress between the conductors decreases
2. ✘ Effect of transients produced by surges increases

3. ✘ Transmission efficiency increases

4. ✘ Sinusoidal voltage drop occurs in the line

Question Number : 157 Question Id : 1592075372 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If power factor of a load decreases, then the transmission line losses will

Options :

1. ✘ Decrease

2. ✘ First decrease and then increase

3. ✘ First increase and then decrease

4. ✔ Increase

Question Number : 158 Question Id : 1592075373 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Metallic sheath is provided over the insulation of a cable conductors to

Options :

1. ✘ Protect against corrosion
2. ✘ Protect against mechanical injury
3. ✔ Protect against moisture & gases in the soil
4. ✘ For flexibility of the cable

Question Number : 159 Question Id : 1592075374 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A two-wire d.c distributor cable is uniformly loaded with 640 A, and total resistance of the distributor is 0.1Ω . Calculate voltage at the centre, if the distributor is fed from both ends with equal voltages of 240 V.

Options :

1. ✘ 176 V
2. ✘ 208 V

3. ✘ 224 V

4. ✔ 232 V

Question Number : 160 Question Id : 1592075375 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Make a correct statement of primary and secondary connections of Booster transformer used in transmission line.

Options :

Primary is connected to regulating transformer and secondary is connected in series with the line

1. ✔

Primary is connected in series with the line and secondary is connected to regulating transformer

2. ✘

Primary is connected to regulating transformer and secondary is connected in parallel with the line

3. ✘

4. ✘

Primary is connected in parallel with the line and secondary is connected to regulating transformer

Question Number : 161 Question Id : 1592075376 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Match the type of distributions with their advantages

- (a) Radial type (i) Reduction in reserve power capacity
- (b) Ring Main type (ii) Less voltage fluctuations
- (c) Interconnected system (iii) Used for short distances

Options :

(a)-(iii); (b)-(i); (c)-(ii)

1. ✘

(a)-(iii); (b)-(ii); (c)-(i)

2. ✔

(a)-(ii); (b)-(iii); (c)-(i)

3. ✘

(a)-(i); (b)-(iii); (c)-(ii)

4. ✘

Question Number : 162 Question Id : 1592075377 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Current chopping is mainly occurs in

Options :

Minimum oil circuit breakers

1. ✘

Bulk oil circuit breakers

2. ✘

Air blast circuit breakers

3. ✔

Vacuum circuit breakers

4. ✘

Question Number : 163 Question Id : 1592075378 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is the low voltage fuse?

Options :

Liquid (carbon tetra chloride) fuse

1. ✘

2. ✘ Metal clad fuse

3. ✔ High Rupturing Capacity (H.R.C) cartridge fuse

4. ✘ Low rupturing capacity fuse

Question Number : 164 Question Id : 1592075379 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Pilot-wire protection scheme is the most economical and provides high speed relaying

for

Options :

1. ✔ Length of lines upto 15 km

2. ✘ Length of the lines from 16 km to 59 km

3. ✘ Length of lines from 60 km to 199 km

4. ✘ Length of the line above 200km

Question Number : 165 Question Id : 1592075380 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following Lightning Arrester used as back up protection?

Options :

1. ✓ Rod gap type

2. ✗ Expulsion type

3. ✗ Valve type

4. ✗ Horn gap type

Question Number : 166 Question Id : 1592075381 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A relay is connected to a 400 / 5 current transformer and having a current setting of

125 % and the plug setting multiplier of 4. The circuit carries a fault current of

Options :

1. ✗ 1500 A

2. ✓ 2000 A

3. ✘ 3000 A

4. ✘ 4000 A

Question Number : 167 Question Id : 1592075382 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

For the protection of star/ delta power transformer, the C.Ts are connected in delta / star in order to compensate

Options :

The phase difference between primary and secondary voltage of

1. ✘ power transformer

The phase difference between primary and secondary current of

2. ✓ power transformer

The difference in the voltages of primary and secondary of power

3. ✘ transformer

The difference in the currents of primary and secondary of power transformer

4. ✘

Question Number : 168 Question Id : 1592075383 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In house wiring a 16 A socket is normally used for

Options :

Small LCD Television

1. ✘

200 Litre Refrigerator

2. ✘

20 Litre Water-heater

3. ✔

Exhaust fan in kitchen

4. ✘

Question Number : 169 Question Id : 1592075384 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Choose a correct statement on earthing.

Options :

1. ✘ Plate electrodes are buried at a depth of less than 1 m from the surface of ground
2. ✘ Pipe electrodes are used for generating stations & Rod electrodes are used for sub-stations
3. ✘ Rod electrodes are used in generating stations & Pipe electrodes are used for sub-stations
4. ✔ Plate electrodes are used for generating stations & sub-stations

Question Number : 170 Question Id : 1592075385 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Under ideal conditions, the empirical formula used to calculate number of fittings 'N' needed for a given illumination 'E' lumens/m², working area 'A' in m² and 'O' lumens per lamp is

Options :

1. ✓ $N=(E \times A)/O$

2. ✗ $N=(E \times O)/A$

3. ✗ $N=E \times A \times O$

4. ✗ $N=(A \times O)/E$

Question Number : 171 Question Id : 1592075386 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Match the frequency of heating with the method of heating.

- | | |
|---------------------|--------------------------|
| (a) Power frequency | (i) Dielectric heating |
| (b) High frequency | (ii) Induction heating |
| | (iii) Resistance heating |
| | (iv) Arc heating |

Options :

1. ✗ (a) – (ii); (b) – (iii)

2. ✗ (a) – (i); (b) – (iv)

3. ✘ (a) – (iii); (b) – (iv)

4. ✔ (a) – (iii); (b) – (i)

Question Number : 172 Question Id : 1592075387 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The power factor (p.f) of transformer used in Metallic arc welding is

Options :

1. ✘ p.f = 1

2. ✘ $0.6 < \text{p.f} < 0.9$

3. ✔ $0.3 < \text{p.f} < 0.5$

4. ✘ $0.1 < \text{p.f} < 0.2$

Question Number : 173 Question Id : 1592075388 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The area of quadrilateral Speed (kmph) -Time (sec.) curve is calculated as 5760

km.sec/hr. The total distance travelled by train is

Options :

1. ✘ 5.76 km

2. ✔ 1.6 km

3. ✘ 9.6 km

4. ✘ 16 km

Question Number : 174 Question Id : 1592075389 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is correct in MagLev system of train transportation?

Options :

1. ✘ It has no air friction

2. ✘ It has track friction

3. ✘ It uses one set of electro-magnets

4. ✓ It uses two sets of electro-magnets

Question Number : 175 Question Id : 1592075390 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Match the following:

Parameter	Transistor configuration
A) Current gain less than unity	X) CE
B) Very large leakage current	Y) CB
C) Very high input impedance	Z) CC

Options :

1. ✗ A --- Y ; B ---- Z; C ---X

2. ✗ A --- X ; B ---- Y; C ---Z

3. ✓ A --- Y ; B ---- X; C ---Z

4. ✗ A --- Z ; B ---- X; C ---Y

Question Number : 176 Question Id : 1592075391 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The devices whose characteristics are very close to that of an Ideal current source
and Ideal Voltage source are respectively

Options :

1. ✘ Zener diode ; Transistor in CB mode
2. ✘ Transistor in CE mode ; Zener diode
3. ✘ Zener diode; Transistor in CC mode
4. ✔ Transistor in CB mode; Zener diode

Question Number : 177 Question Id : 1592075392 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following characteristic is not related to FET compared to BJT?

Options :

1. ✘ Operation of the FET depends upon the flow of majority carriers

2. ✘ FET is a unipolar device
3. ✘ FET has high input impedance
4. ✔ FET has low power gain

Question Number : 178 Question Id : 1592075393 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The turns ratio of a transformer used in a centre tapped rectifier is $(n_1:n_2)$ 10:1. The primary is connected to 200 V, 50 Hz supply. The Peak Inverse Voltage (P.I.V) of each diode is

Options :

1. ✔ $40\sqrt{2}$ V
2. ✘ $20\sqrt{2}$ V
3. ✘ $40/\sqrt{2}$ V
4. ✘ $20/\sqrt{2}$ V

Question Number : 179 Question Id : 1592075394 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

In a fixed bias circuit of a transistor, the data is $R_B = 1\text{ M}\Omega$; $R_C = 5\text{ k}\Omega$; $V_{CC} = 6\text{ V}$ and $\beta = 100$; $V_{BE} = 0$. The Q- point (operating point) is

Options :

1. ✘ (6 V, 0.6 μA)

2. ✔ (3 V, 0.6mA)

3. ✘ (6 V, 0.6 mA)

4. ✘ (3 V, 0.3mA)

Question Number : 180 Question Id : 1592075395 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

The input signal to an amplifier having a gain of 200 is given as $\text{Cos}(314t)$. The output signal will be represented by

Options :

1. ✘

$$-200 \sin (314t)$$

2. ✘ $200 \sin (314t)$

3. ✘ $200 \cos (314t)$

4. ✔ $-200 \cos (314t)$

Question Number : 181 Question Id : 1592075396 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Match the following with respect to amplifiers based on the biasing condition:

Amplifier	Output current flow
L) Class A	A) more than half cycle, but less than full cycle
M) Class B	B) less than full cycle
N) Class AB	C) throughout the a.c cycle
O) Class C	D) for half cycle

Options :

1. ✘ L --- D; M---C; N ---A; O ---B

2. ✓ L --- C; M---D; N ---A; O ---B

3. ✘ L --- C; M---A; N ---D; O ---B

4. ✘ L --- B; M---A; N ---B; O ---D

Question Number : 182 Question Id : 1592075397 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

With introduction of negative feedback in an amplifier

Options :

1. ✘ Voltage gain increases

2. ✘ Gain band width product increases

3. ✘ Raises the lower cut-off frequencies

4. ✓ Raises the upper cut-off frequencies

Question Number : 183 Question Id : 1592075398 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

In RC phase shift oscillator, the feedback network consists of ___ identical RC sections
and provides a total phase shift of _____ respectively.

Options :

1. ✘ Two & 180°

2. ✔ Three & 180°

3. ✘ Two & 360°

4. ✘ Three & 360°

Question Number : 184 Question Id : 1592075399 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

Convert $(1010101)_2$ into decimal number

Options :

1. ✘ 87

2. ✓ 85

3. ✘ 81

4. ✘ 84

Question Number : 185 Question Id : 1592075400 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

Simplify the Boolean expression: $\bar{X} (X+Z) + \bar{Y} + YZ$

Options :

1. ✘ $Y+Z$

2. ✘ $Y+\bar{Z}$

3. ✓ $\bar{Y} + Z$

4. ✘ $\bar{Y} + \bar{Z}$

Question Number : 186 Question Id : 1592075401 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

How many NAND / NOR gates are used to realize Exclusive-OR gate?

Options :

1. ✘ 3 NAND gates

2. ✘ 4 NOR gates

3. ✘ 6 NAND gates

4. ✔ 5 NOR gates

Question Number : 187 Question Id : 1592075402 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

An R-S flip-flop can be formed with

Options :

1. ✔ 2 NAND gates

2. ✘ 1 NAND gate & 1 NOR gate

3.

✘ 1 AND gate & 1 NOR gate

4. ✘ 1 NAND gate & 1 OR gate

Question Number : 188 Question Id : 1592075403 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

How many minimum number of flip-flops are required to construct Mod-12 counter?

Options :

1. ✘ 5 flip-flops

2. ✔ 4 flip-flops

3. ✘ 6 flip-flops

4. ✘ 12 flip-flops

Question Number : 189 Question Id : 1592075404 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The universal 4-bit parallel register 74195 is a

Options :

1. ✘ Serial input / Serial output register
2. ✘ Serial input / Parallel output register
3. ✔ Parallel input / Parallel output register
4. ✘ Parallel input / Serial output register

Question Number : 190 Question Id : 1592075405 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What is the nearest value of resolution of 8-bit Analog-to-Digital converter (ADC) for an input range of 5 V ?

Options :

1. ✘ 19.53 mV
2. ✘ 39.06 mV
3. ✘ 39.37 mV

19.61 mV

4. ✓

Question Number : 191 Question Id : 1592075406 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

BJTs are _____ controlled devices where as IGBTs are _____ controlled devices

Options :

1. ✗ Current & Current

2. ✗ Voltage & Current

3. ✗ Voltage & Voltage

4. ✓ Current & voltage

Question Number : 192 Question Id : 1592075407 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following statement is not correct when Triac is compared to SCR?

Options :

1. ✘ Triacs can be triggered in either direction
2. ✔ Triacs have high dv/dt ratings
3. ✘ Triacs are available in larger ratings
4. ✘ Reliability of Triacs is less

Question Number : 193 Question Id : 1592075408 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

A freewheeling diode is connected across R-L load in a single phase half controlled converter to provide

Options :

1. ✘ Fast turn on
2. ✘ Slow turn on
3. ✔ Power factor improvement
4. ✘

Less output voltage

Question Number : 194 Question Id : 1592075409 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a step down chopper, the load current ripple can be reduced by

Options :

1. ✓ Increasing chopper frequency
2. ✗ Decreasing chopper frequency
3. ✗ Decreasing Inductance
4. ✗ Fixed chopper frequency

Question Number : 195 Question Id : 1592075410 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A single phase full bridge inverter can operate in load commutation mode when the
load is

Options :

1. ✘ RLC over-damped
2. ✘ RLC critically-damped
3. ✔ RLC under-damped
4. ✘ RL load

Question Number : 196 Question Id : 1592075411 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The converter which converts fixed frequency a.c voltage to fixed frequency variable

a.c voltage is known as

Options :

1. ✘ Cyclo converter
2. ✘ Chopper
3. ✘ Inverter
4. ✔

A.C voltage controller

Question Number : 197 Question Id : 1592075412 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

For an SCR, dv/dt and di/dt protection is achieved respectively through the use of

Options :

1. ✓ RC across SCR; L in series with SCR
2. ✗ RL across SCR; RC in series with SCR
3. ✗ RC in series with SCR; L across SCR
4. ✗ R across SCR; L in series with SCR

Question Number : 198 Question Id : 1592075413 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

When an UJT relaxation Oscillator circuit is used for triggering of SCR, the wave shape of the voltage generated by UJT is

Options :

1. ✘ Square wave
2. ✘ Sinusoidal wave
3. ✘ Trapezoidal wave
4. ✔ Saw-tooth wave

Question Number : 199 Question Id : 1592075414 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 1 Wrong Marks : 0

Which of the following is not a standard input interface for PLC?

Options :

1. ✘ 12V AC/DC
2. ✘ 24 V AC/DC
3. ✘ 5 V DC
4. ✔ 50 V AC/DC

Question Number : 200 Question Id : 1592075415 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Contact is open when the relay coil is de-energized. When relay is energized, there is a time delay in closing. The type of timer is

Options :

1. ✓ Normally open, timed closed contact (NOTC)
2. ✘ Normally closed, timed open contact (NCTO)
3. ✘ Normally open, timed open contact (NOTO)
4. ✘ Normally closed, timed closed contact (NCTC)