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 x 2 identity matrix, then (α, β) =

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

If $\begin{bmatrix} 4 & 3 \\ 9 & 7 \end{bmatrix}\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 18 \\ 41 \end{bmatrix}$, 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 $\sin^2 45^o + \sin^2 135^o + \sin^2 225^o + \sin^2 315^o$ 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 ΔABC, if a = 3, b = 4 and $\sin A = \frac{3}{4}$, then the angle B =

Options :

1. ✖ 45^o

2. ✖ 60^o

3. ✔ 90^o

4. ✖ 70^o

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

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

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

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

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

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

Options :

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

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

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

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

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. ✖ $\left(\frac{1}{e}\right)^{1/e}$

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 $\left(x^3+y^3+z^3-3xyz\right)$, 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

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

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

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 Opt

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 Opt[illegible] Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : N

: 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 :

1. ✖ 0.69450

2. ✔ 0.70834

3. ✖ 0.67435

4. ✖ 0.68500

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 :

1. ✔ $-10e^{-10}$

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

$\frac{d^2y}{dx^2} + \left(\frac{dy}{dx}\right)^2 + x = 0$ 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 $sinx\ \frac{dy}{dx} + y\ cosx = x\ sinx$, then $(y-1)sinx =$

Options :

1. ✖ $c - x\ sinx$

2. ✖ $c + x\ sinx$

3. ✔ $c - x\,cosx$

4. ✖ $c + x\,cosx$

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

$(e^y + 1)cosx\,dx + e^y sinx\,dy = 0$ is

Options :

1. ✔ $(e^y + 1)sinx = c$

2. ✖ $e^x sinx = c$

3. ✖ $(e^x + 1)cosx = c$

4. ✖ $(e^y - 1)sinx = c$

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. ✖ $x^2y_1 = y$

2. ✖ $xy_1 + 2y_2 = 0$

3. ✔ $xy_2 + 2y_1 = 0$

4. ✖ $x^2y_1 - 2y = 0$

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 $\log(\frac{dy}{dx}) = 3x + 3y$ 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 $y\,dx+y^2dy=x\,dy, x\in\mathbb{R}, y>0$ 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. $\frac{s}{\left(1+s^2\right)^2}$

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

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

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

$y'' - 2y' + 2y = 0$ satisfying $y(0) = y'(0) = 1$ 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 $f(x) = \begin{cases} \pi + x & \text{if } -\pi < x < 0 \\ 0 & \text{if } 0 \le x < \pi \end{cases}$ 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 $x = \frac{\pi}{2} + \sum_{n=1}^{\infty} a_n \cos nx, \quad 0 < x < \pi$, then the value of a_n is

Options :

1. $\frac{2}{\pi n^2}\left[(-1)^n - 1\right]$ ✔

2. $\frac{2}{\pi n^2}$ ✖

3. 0 ✖

4. $\frac{4}{\pi n^2}$ ✖

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 x 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. ✖ $30\ m/s^2$

2. ✖ $20\ m/s^2$

3. ✔ $0\ m/s^2$

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 :

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

2. ✖ The velocity of a fluid particle remains constant.

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

4. ✖ The speed of a fluid particle remains constant.

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. ✖ $Cp = Cv$

3. ✖ $Cp - Cv > R$

4. ✖ $Cp / Cv = R$

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 0^0C and $R = 8.31 \times 10^7$ erg- mol^{-1} . 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 resisters are possible.

Options :

1. ✔ Four

2. ✖ Two

3. ✖ Three

4. ✖ Five

Question Number : 72 Question Id : 1592075287 Question Type : MCQ Opt

Display Question Number : Yes Is Question Mandatory : No Calculator : N

: 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 mass180) 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. ✖ $Fe(OH)_3$

3. ✔ $KFe[Fe(CN)_6]$

4. ✖ $FeCl_3$

Question Number : 81 Question Id : 1592075296 Question Type : MCQ Opt

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

2. ✖ -9

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 : N

: 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. ✖ $CO_2 + H_2$

2. ✔ $CO + N_2$

3. ✖ $CO + CH_4$

4. ✖ $CH_4 + H_2$

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

$$Fe + \underset{(a=1)}{Ni}^{2+} \longrightarrow \underset{(a=1)}{Fe}^{2+} + Ni$$

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

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 :

1. ✔ $O_2(g) + 4H^+ + 4e^- \rightarrow 2H_2O$

2. ✖ $4H^+ + 4e^- \rightarrow 2H_2(g)$

3. ✖ $2H_2O \rightarrow O_2(g) + 4H^+ + 4e^-$

4. ✖ $2H_2(g) + 4OH^- \rightarrow 4H_2O(\ell) + 4e^-$

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

Options :

1.

1. ✔ 0.3 ℧

2. ✖ 10/3 ℧

3. ✖ 1/3 ℧

4. ✖ 4/3 ℧

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. ✖ R3 /(R1R2+ R2R3+ R3R1)

2. ✖ $(R1+ R2) / (R3)^2$

3. ✖ $(R1+ R2 + R3) / (R1 +R2)^2$

4. ✔ (R1+ R2 + R3) / (R1 R2)

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. (Ampere hrs. of discharge × Average discharge voltage) / (Ampere hrs. of charge × Average charge voltage) ✔

2. (Ampere hrs. of discharge × Average charge voltage) / (Ampere hrs. of charge × Average discharge voltage) ✖

3. (Ampere hrs. of charge × Average discharge voltage) / (Ampere hrs. of discharge × Average charge voltage) ✖

4. (Ampere hrs. of charge × Average charge voltage) / (Ampere hrs. of discharge × 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 20^0C to 100^0C, 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 10 Ω 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 'Yb' is back pitch and 'Y' is winding pitch, then front pitch 'Yf' for a progressive simplex winding is given by

Options :

1. ✖ $Yf = Y + Yb$ for lap winding

2. ✖ $Yf = Y + Yb$ for wave winding

3. ✔ $Yf = Y - Yb$ for wave winding

4. ✖ $Yf = Y - Yb$ 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 :

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

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

3. ✖ (a)– (i); (b) – (iii); (c) – (ii)

4. ✖ (a)– (i); (b) – (ii); (c) – (iii)

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 Op

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

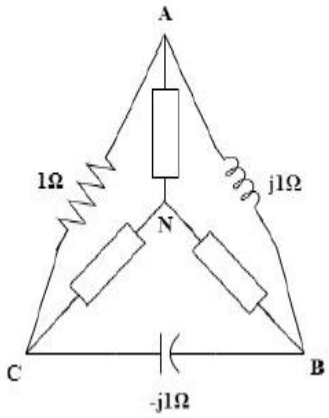
4. ✔ 25 kW

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 45^0

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) W1 = 0 and W2 = WT	P) 0.866
M) W1 = - W2	Q) zero
N) W1 = 2 W2	R) Unity
	S) 0.5

Options :

1. ✖ L ---- S ; M---- P; N----R

2. ✔ L ---- S ; M---- Q; N----P

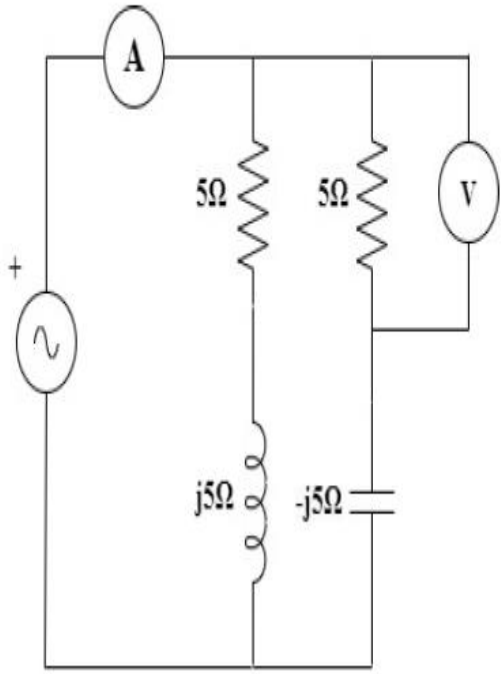
3. ✖ L ---- Q ; M---- P; N----R

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 √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

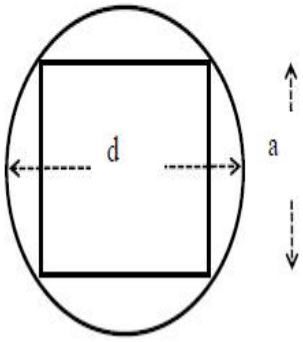
3. ✖ R-C parallel combination

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.

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. ✖ 45^0

2. ✖ 90^0

3. ✔ 0^0

4. ✖ 180^0

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 staring 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

4. 0.2

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 Op

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)

3. ✖ (a) – (iii); (b) – (i); (c) – (ii)

4. ✔ (a) – (i); (b) – (iii); (c) – (ii)

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

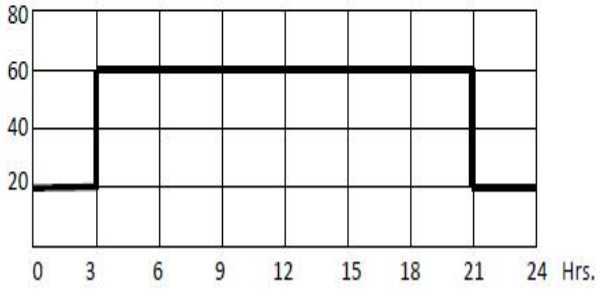
3. ✖ Hot air & Exhaust gases

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/(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 0.1 Ω. 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 :

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

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

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

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 :

1. ✖ (a)-(iii); (b)-(i); (c)-(ii)

2. ✔ (a)-(iii); (b)-(ii); (c)-(i)

3. ✖ (a)-(ii); (b)-(iii); (c)-(i)

4. ✖ (a)-(i); (b)-(iii); (c)-(ii)

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 :

1. ✖ Minimum oil circuit breakers

2. ✖ Bulk oil circuit breakers

3. ✔ Air blast circuit breakers

4. ✖ Vacuum circuit breakers

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 :

1. ✖ Liquid (carbon tetra chloride) fuse

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 :

1. ✖ The phase difference between primary and secondary voltage of power transformer

2. ✔ The phase difference between primary and secondary current of power transformer

3. ✖ The difference in the voltages of primary and secondary of power 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 :

1. ✖ Small LCD Television

2. ✖ 200 Litre Refrigerator

3. ✔ 20 Litre Water-heater

4. ✖ Exhaust fan in kitchen

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/m^2, working area 'A' in m^2 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. ✖ $0.6 < p.f < 0.9$

3. ✔ $0.3 < p.f < 0.5$

4. ✖ $0.1 < p.f < 0.2$

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 MΩ; R_C = 5 kΩ; V_{CC} = 6 V and β = 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 *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 & 180^0

2. ✔ Three & 180^0

3. ✖ Two & 360^0

4. ✖ Three & 360^0

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: $\overline{X}\ (X+Z)+\overline{Y}+YZ$

Options :

1. ✖ $Y+Z$

2. ✖ $Y+\overline{Z}$

3. ✔ $\overline{Y}+Z$

4. ✖ $\overline{Y}+\overline{Z}$

Question Number : 186 Question Id : 1592075401 Question Type : MCQ Op

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

4. ✔ 19.61 mV

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. ✔

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)