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 3rd Aug 2021 Shift1
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Electrical and Electronics Engineering

Group Number :	1
Group Id :	80089498

Group Maximum Duration :	0
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Show Attended Group? :	No
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Break time :	0
Group Marks :	200
Is this Group for Examiner? :	No

Mathematics

Section Id :	800894380
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
Sub-Section Number :	1
Sub-Section Id :	800894434
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 80089419446 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If $A = \begin{bmatrix} 1 & 0 & 0 \\ 1 & 0 & 1 \\ 0 & 1 & 0 \end{bmatrix}$, then $A^{50} =$

Options :

1. ✖ $\begin{bmatrix}1 & 0 & 0\\0 & 1 & 0\\0 & 0 & 1\end{bmatrix}$

2. ✔ $\begin{bmatrix}1 & 0 & 0\\25 & 1 & 0\\25 & 0 & 1\end{bmatrix}$

3. ✖ $\begin{bmatrix}1 & 0 & 0\\24 & 1 & 0\\24 & 0 & 1\end{bmatrix}$

4. ✖ $\begin{bmatrix}1 & 0 & 0\\50 & 1 & 0\\50 & 0 & 1\end{bmatrix}$

Question Number : 2 Question Id : 80089419447 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If $a+b+c=0$, $\begin{vmatrix}ax & by & cz\\bz & cx & ay\\cy & az & bx\end{vmatrix} = k\begin{vmatrix}x & y & z\\z & x & y\\y & z & x\end{vmatrix} = abc(x^3+y^3+z^3)-xyz(a^3+b^3+c^3)$, then $k=$

Options :

1. ✖ xyz

2. ✔ abc

3. ✖ $x+y+z$

4. ✖ 0

Question Number : 3 Question Id : 80089419448 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Consider the statements with reference to the 3× 3 matrices A and B and k is a constant .

I) $A = kB \Rightarrow |A| = k|B|$.

II) adj (AB)=adj(B) adj(A) .

III) for a matrix C, if A=BC⇒ C=$B^{-1}A$

Which of the above statements are correct?

Options :

1. ✖ Only I and II are correct

2. ✔ Only II is correct

3. ✖ Only III is correct

4. ✖ Only II and III are correct

Question Number : 4 Question Id : 80089419449 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If the solution of the system of equations $x-y+z=4, 2x+y-3z=0, x+y+z=2$ is (x,y,z).

then x+y+z=

Options :

1. ✖ 0

2. ✖ 3

3. ✔ 2

4. ✖ 4

Question Number : 5 Question Id : 80089419450 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✖ 2

2. ✔ -4

3. ✖ 0

4. ✖ -2

Question Number : 6 Question Id : 80089419451 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If $y = \frac{a^x + a^{-x}}{2}$, $x > 0$ and $a > 1$ then $x =$

Options :

1. ✖ $\frac{a^y - a^{-y}}{2}$

2. ✔

$\log_a\left(y+\sqrt{y^2-1}\right)$

3. ✖ $\log_a\left(\frac{y-\sqrt{y^2-1}}{2}\right)$

4. ✖ $\log_{1/a} y$

Question Number : 7 Question Id : 80089419452 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If $a^{2019-x} \cdot b^{2021x} = a^{x+2021} \cdot b^{2019x}$, then $x =$

Options :

1. ✖ $\log_{(\frac{b}{a})} b$

2. ✖ $\log_{(\frac{a}{b})} b$

3. ✔ $\log_{(\frac{b}{a})} a$

4. ✖ $\log_{(\frac{a}{b})} a$

Question Number : 8 Question Id : 80089419453 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If $\tan\theta = \frac{p}{q}$ then $\frac{p\sin\theta - q\cos\theta}{p\sin\theta + q\cos\theta} =$

Options :

1. ✖ $\frac{p-q}{p+q}$

2. ✖ $\frac{p^2-q}{p+q^2}$

3. ✔ $\frac{p^2-q^2}{p^2+q^2}$

4. ✖ $\frac{2p}{p+q}$

Question Number : 9 Question Id : 80089419454 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If the area of a triangle is 75 sq.cm and two of its sides are 20 cm and 15 cm, then the included angle between the sides is

Options :

1. ✖ 60^0 or 120^0

2. ✔ 30^0 or 150^0

3. ✖ 45^0 or 135^0

4. ✖ 90^0 or 135^0

Question Number : 10 Question Id : 80089419455 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If $\cosh 2x = 99$, then $\coth x =$

Options :

1. ✖ $\frac{5}{7\sqrt{2}}$

2. ✔ $\frac{10}{7\sqrt{2}}$

3. ✖ $\frac{10}{2\sqrt{7}}$

4. ✖ $\frac{5}{2\sqrt{7}}$

Question Number : 11 Question Id : 80089419456 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A complex number 'z 'having least modulus value and satisfying $|z - 2 + 2i| = 1$ is

Options :

1. ✖ $\left(2 - \frac{1}{\sqrt{2}}\right)(1 + i)$

2. ✖ $\left(2 + \frac{1}{\sqrt{2}}\right)(1 + i)$

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

4. ✖ $\left(2+\frac{1}{\sqrt{2}}\right)(1-i)$

Question Number : 12 Question Id : 80089419457 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If $\frac{(1+i)x-2i}{3+i}+\frac{(2-3i)y+i}{3-i}=1$, then $x+y=$

Options :

1. ✖ $\frac{75}{67}$

2. ✖ $\frac{18}{37}$

3. ✖ $\frac{57}{35}$

4. ✔ $\frac{66}{23}$

Question Number : 13 Question Id : 80089419458 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

$\left(\frac{\sqrt{3}+i}{2}\right)^6+\left(\frac{\sqrt{3}-i}{2}\right)^6=$

Options :

1. ✔ -2

2. ✖ -4

3. ✖ -6

4. ✖ -8

Question Number : 14 Question Id : 80089419459 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If the equation of the straight line $x + y + 1 = 0$ is changed into the form $x\cos\alpha + y\sin\alpha = p, (p > 0)$, then α =

Options :

1. ✖ $\frac{\pi}{4}$

2. ✖ $\frac{3\pi}{4}$

3. ✔ $\frac{5\pi}{4}$

4. ✖ $\frac{7\pi}{4}$

Question Number : 15 Question Id : 80089419460 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

GCD of p, q, r is 1. If the line $px + qy + r = 0$ is passing through the point (4,3) the sum of the intercepts made by the line on the coordinate axes is 14, then a value of $p + q + r$ =

Options :

1. ✖ -25

2. ✖ -23

3. ✔ -17

4. ✖ 31

Question Number : 16 Question Id : 80089419461 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The distance between the parallel lines $3x-4y+20=0, 3x-4y+5=0$ is

Options :

1. ✖ 15 units

2. ✖ 20 units

3. ✔ 3 units

4. ✖ 5 units

Question Number : 17 Question Id : 80089419462 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The distance between the centers of the two circles touching the coordinate axes and the line $3x+4y=12$ in the first quadrant is

Options :

1. ✖ $5\sqrt{3}$

2. ✖ $2\sqrt{5}$

3. ✖ $3\sqrt{5}$

4. ✔ $5\sqrt{2}$

Question Number : 18 Question Id : 80089419463 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The equation of a tangent to the circle $x^2 + y^2 - 2x + 8y - 23 = 0$ having slope 3 is

Options :

1. ✖ $6x - 2y + 25 = 0$

2. ✖ $3x - y + 27 = 0$

3. ✖ $3x - y + 23 = 0$

4. ✔ $3x - y + 13 = 0$

Question Number : 19 Question Id : 80089419464 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The interval in which the value of λ lies, if the line $3x - 4y = \lambda$ cuts the circle $x^2 + y^2 - 4x - 8y = 5$ at two points is

Options :

1. ✖ $(15, 35)$

2. ✖ (35, 15)

3. ✔ (-35, 15)

4. ✖ (-15, 35)

Question Number : 20 Question Id : 80089419465 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

For $A \neq 0$ $\lim_{n\to\infty}\left(\frac{A+e^{nx}}{x+Ae^{nx}}\right) =$

Options :

1. ✖ 1, when $x > 0$

2. ✔ $\frac{A}{x}$, when $x < 0$

3. ✖ $\frac{A}{x}$, when $x > 0$

4. ✖ 0, when $x \in \mathbb{R}$

Question Number : 21 Question Id : 80089419466 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Let f be a differentiable function such that $f(x+y) = f(x) \cdot f(y), \forall\, x, y \in \mathbb{R}$. If $f'(0) = -3$ and $f(5) = 9$,

then $f'(5) =$

Options :

1. ✔ -27

2. ✖ 6

3. ✖ $-\frac{1}{3}$

4. ✖ -3

Question Number : 22 Question Id : 80089419467 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If $y = x^{-x}$ then $\frac{x}{y}\frac{d^2y}{dx^2} + 1 =$

Options :

1. ✖ x

2. ✖ y^2

3. ✔ $y(1 + \log_e x)^2$

4. ✖ $(1 + \log_e x)$

Question Number : 23 Question Id : 80089419468 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The angle of intersection between the curves $x^2 + y^2 = 36\sqrt{2}$ and $x^2 - y^2 = 36$, is

Options :

1. ✖ $\frac{\pi}{6}$

2. ✔ $\frac{\pi}{4}$

3. ✖ $\frac{\pi}{3}$

4. ✖ $\frac{\pi}{12}$

Question Number : 24 Question Id : 80089419469 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If m is the slope of a tangent to the curve $e^y = 1 + x^2$, then

Options :

1. ✖ $|m| > 1$

2. ✖ $m > 1$

3. ✖ $m > -1$

4. ✔ $|m| \leq 1$

Question Number : 25 Question Id : 80089419470 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The maximum and minimum values of the function $f(x)=x^3-18x^2+96x+4$ are M and

m respectively, then M-m=

Options :

1. ✔ 32

2. ✖ 22

3. ✖ 42

4. ✖ 52

Question Number : 26 Question Id : 80089419471 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If $u=log\left(\frac{x^3+y^3}{x^5+y^5}\right)$, then $\left(x\frac{\partial u}{\partial x}+y\frac{\partial u}{\partial y}\right)=$

Options :

1. ✖ e^u

2. ✔ -2

3. ✖ log(u)

4. ✖ 1

Question Number : 27 Question Id : 80089419472 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If $f(t) = 1 + t^2 + t^4 + t^6$, then $\int f(\tan x)dx =$

Options :

1. ✖ $x + \frac{(\tan x)^3}{3} + \frac{(\tan x)^5}{5} + \frac{(\tan x)^7}{7} + c$

2. ✔ $\tan x + \frac{(\tan x)^5}{5} + c$

3. ✖ $(\tan x)^2 + \frac{(\tan x)^5}{5} + c$

4. ✖ $\tan x + \frac{(\tan x)^3}{3} + \frac{(\tan x)^5}{5} + \frac{(\tan x)^7}{7} + c$

Question Number : 28 Question Id : 80089419473 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If $\int\left((1+x)\sin x + (1-x)\cos x\right)dx =$ A(sinx - cosx) + f(x)(sinx + cos x) + C, then A f(x)=

Options :

1. ✖ 3x

2. ✖ 3 sinx

3. ✔ - 2x

4. ✖ 2 x +sinx

Question Number : 29 Question Id : 80089419474 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

$$\text{If} \int x^5 e^{x^2} dx = \frac{1}{2} e^{x^2} f(x) + c \text{ then } f(2) =$$

Options :

1. ✖ 8

2. ✖ 9

3. ✔ 10

4. ✖ 12

Question Number : 30 Question Id : 80089419475 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

$$\lim_{n\to\infty} \frac{1}{n}\left(\sin\left(\frac{1}{n}\right) + \sin\left(\frac{2}{n}\right) + \sin\left(\frac{3}{n}\right) + \ldots\ldots \sin(1)\right) =$$

Options :

1. ✖ cos(1)

2. ✖ Cos (½)

3. ✔ $2\sin^2\left(\frac{1}{2}\right)$

4. ✖ log2

Question Number : 31 Question Id : 80089419476 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The area bounded by the curve $y = (x-1)(x-2)(x-3)$ and x-axis lying between $x = 1$ and $x = 3$

is

Options :

1. ✖ $\frac{5}{2}$

2. ✖ $\frac{11}{2}$

3. ✔ $\frac{1}{2}$

4. ✖ $\frac{7}{4}$

Question Number : 32 Question Id : 80089419477 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The area of the region bounded by the curves $y = \sin x$ and $y = \cos x$, x-axis, $x=0$ and $x=\frac{\pi}{2}$ is

Options :

1. ✖ twice the area between $y = (\sin x - \cos x)$, x-axis, $x=0$ and $x=\frac{\pi}{4}$

2. ✖ equal to the area between $y = \sin x$, x-axis, $x=0$ and $x=\frac{\pi}{4}$

3. ✖

equal to the area between $y = (\sin x + \cos x)$, x-axis, x=0 and $x=\frac{\pi}{2}$

4. ✔ twice the area between $y = \sin x$, x-axis, x=0 and $x=\frac{\pi}{4}$

Question Number : 33 Question Id : 80089419478 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The value of a function f at different points are given in the following table

x	0	1	2	3	4	5	6
f(x)	0	1	1.414	1.732	2	2.236	2.449

The approximate value of $\int_0^6 f(x)\,dx =$

Options :

1. ✖ 8.516

2. ✔ 9.716

3. ✖ 9.125

4. ✖ 9.203

Question Number : 34 Question Id : 80089419479 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If p and q respectively are order and degree of the differential equation $y^2\left(\frac{d^2y}{dx^2}\right)+3x\left(\frac{dy}{dx}\right)^{\frac{1}{3}}=\sin x-x^2y^2$, then pq =

Options :

1. ✖ 2

2. ✔ 6

3. ✖ 15

4. ✖ 12

Question Number : 35 Question Id : 80089419480 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The equation of the curve passing through the origin and satisfying the differential equation $\frac{dy}{dx}=\frac{x-y}{x+y}$ is

Options :

1. ✔ $x^2-y^2-2xy=0$

2. ✖ $x^2-y^2+2xy=0$

3. ✖ $x^2+y^2-2xy=0$

4. ✖ $x^2+y^2+2xy=0$

Question Number : 36 Question Id : 80089419481 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The solution of the differential equation $\frac{dy}{dx} - ky = 0, y(0) = 1$, approach zero as x$\rightarrow \infty$, when

Options :

1. ✖ $k = 0$

2. ✖ $k > 0$

3. ✔ $k < 0$

4. ✖ k is any real number

Question Number : 37 Question Id : 80089419482 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The general solution of the differential equation $x\frac{dy}{dx} + y = x^3y^6$ is

Options :

1. ✖ $(5x^3 - cx^5)y^5 = 2$

2. ✖ $(5x^5 - cx^3)y^5 = 2$

3. ✖ $(5x^5 + cx^3)y^5 = 2$

4. ✔ $(5x^3 + cx^5)y^5 = 2$

Question Number : 38 Question Id : 80089419483 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If the particular integral of $\frac{d^2y}{dx^2} - 6\frac{dy}{dx} + 13y = 8e^{3x}\sin 2x$ is equal to f(x) times the particular integral of $\frac{d^2y}{dx^2} + 4y = \sin 2x$, then f(x) =

Options :

1. ✖ e^{2x}

2. ✔ $8e^{3x}$

3. ✖ $8\sin 2x$

4. ✖ $8e^{3x}\sin 2x$

Question Number : 39 Question Id : 80089419484 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The particular integral of $\frac{d^2y}{dx^2} + 4y = -4\cos 2x$ is

Options :

1. ✔ $-x\sin 2x$

2. ✖ $\frac{-x\sin 2x}{2}$

3. ✖ $\frac{-x\cos 2x}{2}$

4. ✖ $-x\cos 2x$

Question Number : 40 Question Id : 80089419485 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The Laplace transform of the function $f(t) = |t-1| + |t+1|, t \geq 0$ is

Options :

1. ✖ $\frac{2}{s}(s + e^{-s})$

2. ✔ $\frac{2}{s^2}(s + e^{-s})$

3. ✖ $\frac{2}{s^2}(s - e^{-s})$

4. ✖ $\frac{2}{s}(s - e^{-s})$

Question Number : 41 Question Id : 80089419486 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If $L\{F(t)\} = \frac{2s+5}{s^2+2s-3}$ then $L\{F(2t)\} =$

Options :

1. ✔ $\frac{2s+10}{s^2+4s-12}$

2. ✖ $\frac{2s+10}{s^2+4s+12}$

3. ✖ $\frac{2s+10}{s^2+6s-12}$

4. ✖ $\frac{s+5}{s^2+4s-12}$

Question Number : 42 Question Id : 80089419487 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If $f(t)= \sin t + (\sin 2t - \sin t)u(t-\pi) + (\sin 3t - \sin 2t)u(t-2\pi)$ where u(t - a) is a unit step function , then f(t) when $\pi \le t \le 2\pi$ is

Options :

1. ✖ Sint

2. ✔ sin 2t

3. ✖ sin 3t

4. ✖ sint + sin2t

Question Number : 43 Question Id : 80089419488 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The Laplace transform of $f(t) = \begin{cases} 0, 0 < t \le 1 \\ (t-1), 1 < t < 2 \\ 1, \ t \ge 2 \end{cases}$

Options :

1. ✖

$\frac{e^{-s}+e^{-2s}}{s^2}$

2. ✖ $\frac{e^{-s}-e^{-2s}}{s}$

3. ✔ $\frac{e^{-s}-e^{-2s}}{s^2}$

4. ✖ $\frac{e^{-2s}-e^{-s}}{s^2}$

Question Number : 44 Question Id : 80089419489 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

$L^{-1}\left\{\frac{3s+1}{(s+1)^4}\right\}=e^{-t}F(t)$ then $F(1)=$

Options :

1. ✖ $\frac{1}{6}$

2. ✖ $\frac{1}{3}$

3. ✔ $\frac{7}{6}$

4. ✖ $\frac{5}{6}$

Question Number : 45 Question Id : 80089419490 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If $L(f(t)) = \left\{\frac{1}{(s+4)^{5/2}}\right\}$, than f(t) is

Options :

1. ✔ $\frac{4}{3\sqrt{\pi}} e^{-4t} t^{3/2}$

2. ✖ $\frac{4}{3\sqrt{\pi}} t^{3/2}$

3. ✖ $\frac{4}{3\sqrt{\pi}} e^{4t} t^{3/2}$

4. ✖ $\frac{4}{3\sqrt{\pi}} e^{-4t} t^{5/2}$

Question Number : 46 Question Id : 80089419491 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If $y = y(t)$ satisfies the differential equation $y''' + 2y'' - y' - 2y = 0$ together with the conditions

$y(0) = y'(0) = 0, y''(0) = 3$, then the Laplace transform of $y(t)$ is equal to

Options :

1. ✖ $\frac{3}{(s^2-1)(s-2)}$

2. ✔ $\frac{3}{(s^2-1)(s+2)}$

3. ✖ $\frac{3}{(s^2+1)(s+2)}$

4. ✖ $\frac{3}{(s^2+1)(s-2)}$

Question Number : 47 Question Id : 80089419492 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Let $f(x)=e^{2x}$ in $(-\pi,\pi)$ and $f(x+2\pi)=f(x),\forall x$. If the Fourier series expansion of the function is

$$f(x)=\sum_{n=0}^{\infty}(a_n\cos nx+b_n\sin nx) \text{ then } a_0 =$$

Options :

1. ✖ $\frac{\sinh 2\pi}{8\pi}$

2. ✖ $\frac{\sinh 2\pi}{\pi}$

3. ✖ $\frac{\sinh 2\pi}{4\pi}$

4. ✔ $\frac{\sinh 2\pi}{2\pi}$

Question Number : 48 Question Id : 80089419493 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If $f(x)=\begin{cases}0, \text{if } -\pi \le x \le 0 \\ \sin x, \text{if } 0 \le x \le \pi\end{cases}$, $f(x+2\pi)=f(x), \forall x$ and $f(x)=\sum_{n=0}^{\infty}(a_n \cos nx + b_n \sin nx)$, then

$b_1+b_2+b_3=$

Options :

1. ✖ 0

2. ✖ -1

3. ✔ $\frac{1}{2}$

4. ✖ $\frac{1}{4}$

Question Number : 49 Question Id : 80089419494 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If f(x) is periodic function defined on $-p \le x \le p$, then the coefficient of $\cos \frac{n\pi x}{p}$ in the Fourier series expansion of f(x) is

Options :

1. ✖ $\frac{1}{p}\int_{-p}^{p} f(x) \cos nx dx$

2. ✖ $\frac{1}{2p}\int_{-p}^{p} f(x) \cos \frac{nx}{p} dx$

3. ✖ $\frac{2}{p}\int_{0}^{p} f(x) \cos \frac{n\pi x}{p} dx$

4. ✔ $\frac{1}{p}\int_{-p}^{p} f(x)\cos\frac{n\pi x}{p}dx$

Question Number : 50 Question Id : 80089419495 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If $f(x) = |\cos x|, x \in (-\pi, \pi)$ and $f(x) = \sum_{n=0}^{\infty}(a_n \cos nx + b_n \sin nx)$, then $a_0 + b_1 =$

Options :

1. ✖ $\frac{-4}{\pi^2}$

2. ✔ $\frac{2}{\pi}$

3. ✖ $\frac{4}{\pi}$

4. ✖ $\frac{-2}{\pi^2}$

Physics

Section Id :	800894381
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	Yes

Clear Response :

Sub-Section Number : 1

Sub-Section Id : 800894435

Question Shuffling Allowed : Yes

Question Number : 51 Question Id : 80089419496 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The dimensional formulae of the following pair of physical quantities are same

Options :

1. ✖ Heat and Temperature

2. ✖ Work and Power

3. ✔ Work and Energy

4. ✖ Power and Energy

Question Number : 52 Question Id : 80089419497 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In the phenomenon of photo electric effect, the number of photo electrons emitted is proportional to

Options :

1. ✔ The intensity of radiation

2. ✖ The frequency of radiation

3. ✖ The velocity of incident radiation

4. ✖ The work-function of cathode material

Question Number : 53 Question Id : 80089419498 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The superconducting state is perfectly _____ in nature

Options :

1. ✔ Diamagnetic

2. ✖ Paramagnetic

3. ✖ Ferromagnetic

4. ✖ Non-magnetic

Question Number : 54 Question Id : 80089419499 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

An ideal gas at temperature T is compressed through an isochoric process until its pressure is doubled
What is the final temperature

Options :

1. ✔ 2T

2. ✖ T/2

3. ✖ T

4. ✖ 3T

Question Number : 55 Question Id : 80089419500 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Match the following lists

List-I	List-II
A. Isochoric process	i. Pressure remains constant
B. Isobaric process	ii. Temperature remains constant
C. Isothermal process	iii. Heat remains constant
D. Adiabatic process	iv. Volume remains constant

Options :

1. ✖ A-i, B-ii, C-iii, D-iv

2. ✖ A-iv, B-ii, C-iii, D-i

3. ✖ A-iv, B-iii, C-ii, D-i

4. ✔ A-iv, B-i, C-ii, D-iii

Question Number : 56 Question Id : 80089419501 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The difference between two specific heats, C_p and C_v for a gas represents

Options :

1. ✖ Increase in kinetic energy of gas molecules

2. ✖ Increase in potential energy of gas molecules

3. ✔ External work done

4. ✖ Internal work done

Question Number : 57 Question Id : 80089419502 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Two vectors of equal magnitude R make an angle 60 degrees with each other. What is the magnitude of their resultant?

Options :

1. ✖ $R/\sqrt{2}$

2. ✖ $2\sqrt{2}\,R$

3. ✖ $\sqrt{2}\,R$

4. ✔ $\sqrt{3}\,R$

Question Number : 58 Question Id : 80089419503 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If **i** and **j** represent unit vectors in East and North directions, then the vector **i** – **j** is in the direction of

Options :

1. ✖ North-East

2. ✖ North-West

3. ✔ South-East

4. ✖ South-West

Question Number : 59 Question Id : 80089419504 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If θ is the angle between two vectors $\vec{a}$ and $\vec{b}$, then $|\vec{a}.\vec{b}| = |\vec{a} \times \vec{b}|$, when θ is equal to

Options :

1. ✖ 0

2. ✔ $\frac{\pi}{4}$

3. ✖ $\frac{\pi}{2}$

4. ✖ π

Question Number : 60 Question Id : 80089419505 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A stone of mass 10 gm is horizontally thrown from a cliff of height 500 m with an initial velocity 100 m/s. Time taken to reach the ground. [Take g = 10 m/s^2 , and neglect air resistance].

Options :

1. ✖ $\sqrt{80}$ s

2. ✖ 40 s

3. ✖ 20 s

4. ✔ 10 s

Question Number : 61 Question Id : 80089419506 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The maximum height a football reaches if it is kicked with a velocity 40 m/s at an angle 30 degrees with the horizontal. (Take g = 10 m/s^2)

Options :

1. ✖ 60 m

2. ✖ 40 m

3. ✔ 20 m

4. ✖ 10 m

Question Number : 62 Question Id : 80089419507 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following produces least friction?

Options :

1. ✖ Sliding friction

2. ✖ Composite friction

3. ✔ Rollingfriction

4. ✖ Static friction

Question Number : 63 Question Id : 80089419508 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Two cars of unequal masses, having similar tyres, are moving on horizontal surface with the same initial speed. The minimum stopping distance is

Options :

1. ✖ smaller for lighter car

2. ✖ smaller for heavier car

3. ✖ depends on the volume of the car

4. ✔ same for both the cars

Question Number : 64 Question Id : 80089419509 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

What is the work done by an engine which lifts a mass of 100 kg through a height of 10 cm

[Take g = 10 m/s^2]

Options :

1. ✔ 100 J

2. ✖ 1000J

3. ✖ 10,000 J

4. ✖ 1 J

Question Number : 65 Question Id : 80089419510 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If a light body and a heavy body have equal momentum, then

Options :

1. ✔ The lighter body has greater energy than the heavier body

2. ✖ The lighter body has lesser kinetic energy than the heavier body

3. ✖ The kinetic energy of the lighter body is equal to the kinetic energy of the heavier body

4. ✖ The kinetic energy of both the bodies are independent of momentum

Question Number : 66 Question Id : 80089419511 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In simple harmonic motion, the restoring force must be proportional to

Options :

1. ✖ Amplitude

2. ✖ Frequency

3. ✖ Velocity

4. ✔ Displacement

Question Number : 67 Question Id : 80089419512 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The time period of the particle executing simple harmonic motion as per the equation

$x = (25\ m) \sin [(2\ \pi\ s^{-1})\ t + \pi / 2]$.

Options :

1. ✔ 1 s

2. ✖ 2 s

3. ✖ 3 s

4. ✖ 4 s

Question Number : 68 Question Id : 80089419513 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is the length of a simple pendulum that has a period of 10 s ?

Options :

1. ✖ 24.84 cm

2. ✖ 2.484 cm

3. ✖ 2.484 m

4. ✔ 24.84 m

Question Number : 69 Question Id : 80089419514 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The intensity of sound is measured in the units of

Options :

1. ✖ Joule

2. ✖ Ampere

3. ✔ Decibel

4. ✖ Volt

Question Number : 70 Question Id : 80089419515 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

According to Sabine the reverberation time is

Options :

1. ✔ Proportional to the volume of the hall and inversely proportional to the total absorption

2. ✖ Proportional to the total absorption and inversely proportional to the volume of the hall

3. ✖ Proportional to both volume of the hall and total absorption

4. ✖ Independent of volume of the hall and total absorption

Question Number : 71 Question Id : 80089419516 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

When the deforming forces are removed, if a body remains in the deformed state and does not even partially regain its original shape it is called

Options :

1. ✖ Elastic body

2. ✖ Perfectly elastic body

3. ✔ Inelastic body

4. ✔ Plastic body

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

Question Number : 72 Question Id : 80089419517 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The viscosity of a gas_____

Options :

1. ✖ Decreases with increase in temperature

2. ✔ Increases with increase in temperature

3. ✖ Is independent of temperature

4. ✖ is independent of pressure for very high pressure intensities

Question Number : 73 Question Id : 80089419518 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Ohm's law is not applicable to _____

Options :

1. ✖ DC circuits

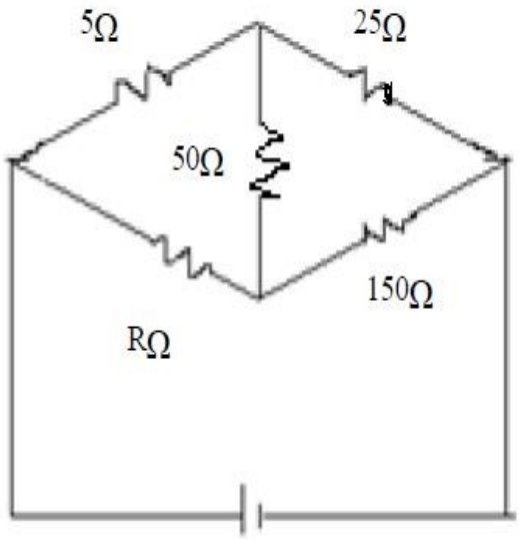
2. ✖ High currents

3. ✖ Small resistors

4. ✔ Semiconductors

Question Number : 74 Question Id : 80089419519 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Assume that the current through resistor 50Ω in the given circuit is zero, the value of R is



Options :

1. ✔ 30 Ω

2. ✖ 40 Ω

3. ✖ 50 Ω

4. ✖ 100 Ω

Question Number : 75 Question Id : 80089419520 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The force of attraction between the magnetic poles of strength m_1 and m_2 separated by a distance 'd' in free space is given by

Options :

1. ✖ $F = \frac{\mu}{4\pi}\frac{m_1 m_2}{d^2}$

2. ✔ $F = \frac{\mu_0}{4\pi}\frac{m_1 m_2}{d^2}$

3. ✖ $F = \frac{\mu_0}{2\pi}\frac{m_1 m_2}{d^2}$

4. ✖ $F = \frac{\mu_0}{4\pi}\frac{d^2}{m_1 m_2}$

Chemistry

Section Id :	800894382
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
Sub-Section Number :	1
Sub-Section Id :	800894436

Question Shuffling Allowed : Yes

Question Number : 76 Question Id : 80089419521 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

According to Paulis exclusion principle, two electrons in the same orbital contains

Options :

1. ✖ Vertical spins

2. ✖ Angular spins

3. ✖ Same spins

4. ✔ Opposite spins

Question Number : 77 Question Id : 80089419522 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

In the formation of nitrogen molecule, the number of electron pairs shared between the two nitrogen atoms is

Options :

1. ✖ Two

2. ✔ Three

3. ✖ One

4. ✖ Four

Question Number : 78 Question Id : 80089419523 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

In the redox reaction of hypo and Iodine, the oxidation number of sulphur atom changes from

Options :

1. ✔ +2 to +2.5

2. ✖ +2.5 to +2.0

3. ✖ +2.0 to +3.0

4. ✖ +1.0 to +2.0

Question Number : 79 Question Id : 80089419524 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

When the Phenol and water mixed together, the formed solution is called

Options :

1. ✖ Homogeneous

2. ✔ Heterogeneous

3. ✖ Colloidal

4. ✖ Azeotropic

Question Number : 80 Question Id : 80089419525 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

How many grams of anhydrous oxalic acid is required to prepare one liter of 0.1 N oxalic acid solution?

Options :

1. ✖ 45 grams

2. ✖ 9.0 grams

3. ✔ 4.5 grams

4. ✖ 0.9 grams

Question Number : 81 Question Id : 80089419526 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If the sulphate ion concentration in a solution of $Al_2(SO_4)_3$ is 0.25 M, the concentration of $Al_2(SO_4)_3$ in the solution is

Options :

1. ✖ 0.250 M

2. ✖ 0.0625 M

3. ✔ 0.0833 M

4. ✖ 0.125M

Question Number : 82 Question Id : 80089419527 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which of the following pair of species represent as conjugate Acid base?

Options :

1. ✖ HCl, H_2O

2. ✖ H_3PO_4, H_3O^+

3. ✔ HSO_3^-, SO_3^{2-}

4. ✖ H_2CO_3, CO_2

Question Number : 83 Question Id : 80089419528 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

From the following, choose the correct $[H^+]$ of a NaOH solution in M, if its pOH is 11.3

Options :

1. ✔ 2×10^{-3}

2. ✖ 2.7×10^{-3}

3. ✖ 2.7×10^{-12}

4. ✖ 6.2×10^{-8}

Question Number : 84 Question Id : 80089419529 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Hydrochloric acid is a strong acid. This means that _____.

Options :

1. ✔ HCl dissociates completely in to $H^+(aq)$ and $Cl^-(aq)$ when it dissolves in water

2. ✖ HCl does not dissociate at all when it is dissolved in water

3. ✖ HCl produces a gaseous product when it is neutralized

4. ✖ HCl cannot be neutralized by a weak base

Question Number : 85 Question Id : 80089419530 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The impurities associated with mineral used in metallurgy are called

Options :

1. ✖ Flux

2. ✔ Gangue

3. ✖ Slag

4. ✖ Ore

Question Number : 86 Question Id : 80089419531 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

German silver is an alloy of

Options :

1. ✖ Ag, Cu, Zn

2. ✖ Ag, Cu, Au

3. ✔ Cu, Zn, Ni

4. ✖ Cu, Zn, Fe

Question Number : 87 Question Id : 80089419532 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The degree of dissociation of weak electrolytes is

Options :

1. ✖ 100 %

2. ✖ ≥ 30 %

3. ✖ ≤ 10 %

4. ✔ < 3 %

Question Number : 88 Question Id : 80089419533 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

With reference to Faraday's second law, the weights of different substances deposited by the passage of the same quantity of electricity, are proportional to their _____

Options :

1. ✔ Chemical equivalent weights

2. ✖ Current supply

3. ✖ Chemical equivalent density

4. ✖ Molecular Weights

Question Number : 89 Question Id : 80089419534 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A zinc rod is placed in 0.1M solution of zinc sulphate at 25°C. Assuming that the salt is dissociated to the extent of 95% at this dilution. The potential of the electrode at this temperature is ($E^{\circ}_{Zn^{2+}/Zn}$ = - 0.76 V and log 0.095 = -1.0223).

Options :

1. ✖ -0.76 V

2. ✖ $+0.76$ V

3. ✔ -0.79 V

4. ✖ $+0.79$ V

Question Number : 90 Question Id : 80089419535 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which of the following does not corrode when exposed to air?

Options :

1. ✖ Cu

2. ✔ Al

3. ✔ Ag

4. ✖ Fe

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

Question Number : 91 Question Id : 80089419536 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which metals from the following can provide cathodic protection to Iron?

Options :

1. ✖ Zn and Cu

2. ✖ Al and Cu

3. ✖ Al and Ni

4. ✔ Al and Zn

Question Number : 92 Question Id : 80089419537 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The hardness of water is caused by

Options :

1. ✖ Undissolved salts of Ca^{+2} and Mg^{+2}

2. ✖ Undissolved salts of Cu^{+2} and Mg^{+2}

3. ✔ Dissolved salts of Ca^{+2} and Mg^{+2}

4. ✖ Undissolved $CaCO_3$

Question Number : 93 Question Id : 80089419538 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A water sample contains 204 mg of $CaSO_4$ per Litre. Its hardness in terms of $CaCO_3$ equivalent is

Options :

1. ✔ 150 ppm

2. ✖ 136 ppm

3. ✖ 204 ppm

4. ✖ 100 ppm

Question Number : 94 Question Id : 80089419539 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Hard water can block radiators due to the formation of?

Options :

1. ✔ insoluble calcium and magnesium salts

2. ✖ insoluble sodium salts

3. ✖ insoluble phosphate salts

4. ✖ insoluble potassium salts

Question Number : 95 Question Id : 80089419540 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Choose the incorrect statement from the following options.

Options :

1. ✖ The molecular weight of the polymer steadily rises throughout the reaction, in condensation polymerisation

2. ✖ In addition polymerisation, growth of chain is at one active centre.

3. ✖ No by product will be formed in the addition polymerisation

The molecular weight of the polymer steadily increases throughout the reaction,

4. ✔ in addition polymerisation

Question Number : 96 Question Id : 80089419541 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which of the following is a thermoplastic?

Options :

1. ✔ Teflon

2. ✖ Natural rubber

3. ✖ Neoprene

4. ✖ Buna-S

Question Number : 97 Question Id : 80089419542 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which of the following a characteristic feature is of a good fuel?

Options :

1. ✖ High moisture content

2. ✖ Should undergo spontaneous combustion

3. ✖ Low calorific value

4. ✔ High calorific value

Question Number : 98 Question Id : 80089419543 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Producer gas is primarily a mixture of

Options :

1. ✔ $CO + N_2$

2. ✖ $CO + H_2$

3. ✖ $CO + CH_4$

4. ✖ $N_2 + H_2$

Question Number : 99 Question Id : 80089419544 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The measurement of dissolved oxygen used by microorganisms during the biochemical oxidation of organic matter in 5 days at 20°C is said to be

Options :

1. ✔ Biological Oxygen Demand

2. ✖ Chemical Oxygen Demand

3. ✖ Biological Dissolved Oxygen

4. ✖ Threshold Oxygen Demand

Question Number : 100 Question Id : 80089419545 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is a green house gas?

Options :

1. ✖ H_2

2. ✖ N_2

3. ✖ CO

4. ✔ CO_2

Electrical and Electronics Engineering

Section Id :	800894383
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
Sub-Section Number :	1

Sub-Section Id : 800894437

Question Shuffling Allowed : Yes

Question Number : 101 Question Id : 80089419546 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The resistance of a copper wire is R ohms. The wire is stretched to its double length. The new resistance of the wire in Ohms

Options :

1. ✖ R

2. ✖ R/2

3. ✔ 4R

4. ✖ 2R

Question Number : 102 Question Id : 80089419547 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The maximum power that can be transferred to the load R_L connected across the terminals of voltage source of V = 10 V and internal resistance of 100 Ω is

Options :

1. ✖ 0.5 W

2. ✖ 10 W

3. ✖ 1 W

4. ✔ 0.25 W

Question Number : 103 Question Id : 80089419548 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A Voltage source 20 V, Internal resistance 5 ohms is connected in parallel with another voltage source of 10 V with internal resistance of 10 ohms. The Thevenin's voltage of this combination is

Options :

1. ✖ 30 V

2. ✔ 50/3 V

3. ✖ 15 V

4. ✖ 20 V

Question Number : 104 Question Id : 80089419549 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which of the statements are correct?

A) 1KWH = 3.6M J
B) 1 h.p (British) = 735.5 W
C) 1 h.p (metric) = 746 W
D) 1 Nm = 1 J

Options :

1. ✖ A and B only

2. ✖ A and C only

3. ✖ C and D only

4. ✔ A and D only

Question Number : 105 Question Id : 80089419550 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The power consumed by an immersion heater operating on a 230 V, 50 Hz single phase supply is 2.3kW. Then, the resistance of the heater is,

Options :

1. ✖ 2.3 Ω

2. ✔ 23 Ω

3. ✖ 46 Ω

4. ✖ 4.6 Ω

Question Number : 106 Question Id : 80089419551 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Two long single layer solenoids have the same length and the same number of turns but are placed Co-axially one within the other. The diameter of the inner coil is 60 mm and that of the outer coil is 75 mm. The coefficient of coupling between the coils is

Options :

1. ✖ 0.6

2. ✔ 0.8

3. ✖ 0

4. ✖ 1

Question Number : 107 Question Id : 80089419552 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The plates of a parallel plate capacitor are designed to have a cross section of 100 mm^2, and they are separated by a distance of 0.1 mm, with air as dielectric between them. If the capacitor is charged to 100 V, how much of energy is stored in it?

Options :

1. ✖ 8.85 pJ

2. ✖ 44.3 mJ

3. ✖ 8.85 nJ

4. ✔ 44.3 nJ

Question Number : 108 Question Id : 80089419553 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which of the following conducting material is used as conductors for overhead transmission lines?

Options :

1. ✖ Aluminum

2. ✔ ACSR

3. ✖ CCSR

4. ✖ Steel

Question Number : 109 Question Id : 80089419554 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The Cathode and anode of a lead-acid battery are respectively made up of,

Options :

1. ✖ Lead and Lead

2. ✖ Lead peroxide and Lead

3. ✖ Lead oxide and Lead

4. ✔ Lead and Lead peroxide

Question Number : 110 Question Id : 80089419555 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which of the following materials has highest dielectric strength?

Options :

1. ✔ Porcelain

2. ✖ Cotton

3. ✖ Teflon

4. ✖ Bakelite

Question Number : 111 Question Id : 80089419556 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The purpose of using Compensating winding in D.C. generators is to,

Options :

1. ✖ reduce the eddy currents

2. ✖ provide a path for cooling air

3. ✔ neutralise the effect of cross-magnetisation

4. ✖ reduce the hysteresis currents

Question Number : 112 Question Id : 80089419557 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Lap winding is suitable for _____ applications of D.C. generators.

Options :

1. ✖ high voltage, low current

2. ✖ low voltage, low current

3. ✖ high voltage, high current

4. ✔ low voltage, high current

Question Number : 113 Question Id : 80089419558 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The characteristic which makes Shunt generators most suited for stable parallel operation is, _____.

Options :

1. ✖ rising voltage

2. ✔ drooping voltage

3. ✖ Identical voltage

4. ✖ linear voltage

Question Number : 114 Question Id : 80089419559 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If the back e.m.f of a D.C motor is 115 Volts, the supply voltage to develop maximum power developed is

Options :

1. ✔ 230 V

2. ✖ 115 V

3. ✖ 460 V

4. ✖ 57.5 V

Question Number : 115 Question Id : 80089419560 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A 230 V DC shunt motor takes an armature current of 20 A on a particular load. The armature resistance is 0.5 ohms. The value of resistance required in series with the armature to reduce the speed by 50% is , (assume load torque is constant)

Options :

1. ✖ 2.5 ohms

2. ✖ 3.5 ohms

3. ✖ 4.5 ohms

4. ✔ 5.5 ohms

Question Number : 116 Question Id : 80089419561 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A D.C Shunt motor drives a load torque at rated voltage and rated excitation. If the load torque is doubled, the motor speed would be

Options :

1. ✖ doubled

2. ✖ halved

3. ✔ decreased slightly

4. ✖ increased slightly

Question Number : 117 Question Id : 80089419562 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The moving system of an indicating type of electrical instrument at equilibrium point

Options :

1. ✖ $T_{deflecting} = T_{Damping}$

2. ✖ $T_{deflecting} > T_{Damping}$

3. ✖ $T_{controlling} = T_{Damping}$

4. ✔ $T_{deflecting} = T_{controling}$

Question Number : 118 Question Id : 80089419563 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Identify the wrong statement with respect to Potential Transformer (P.T.)

Options :

1. ✖ P.T. secondary is commonly designed for an output voltage of 110 Volts.

2. ✖ Generally, P.Ts are of Shell type.

3. ✔ Secondary of P.T must be short circuited.

4. ✖ P.T has a small volt-ampere ratings.

Question Number : 119 Question Id : 80089419564 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The maximum measurable voltage by a D.C potentiometer is 2 V with a slide wire of 800 mm length. When it is used to measure the e.m.f the balance is obtained at wire lengths of 600 mm and 680 mm with a standard cell of 1.18 V and a test cell, respectively. Calculate the emf of the test cell?

Options :

1. ✖ 1.00 V

2. ✔ 1.34 V

3. ✖ 1.70 V

4. ✖ 1.50 V

Question Number : 120 Question Id : 80089419565 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which of the following instruments can measure currents and voltages of very high frequencies upto about 50 MHz?

Options :

1. ✖ Moving Iron Instruments

2. ✔ Thermocouple Instruments

3. ✖ Dynamometer type Instruments

4. ✖ P.M.M.C Instruments

Question Number : 121 Question Id : 80089419566 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The Current is measured by a clamp meter by sensing the _____ around the conductor.

Options :

1. ✖ Electric field

2. ✔ Magnetic field

3. ✖ Charge

4. ✖ Electric and magnetic field

Question Number : 122 Question Id : 80089419567 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

An A.C series circuit consisting of a resistance of 6 ohms and an inductive reactance of 8 ohms is connected to a single phase 200 V, 50 Hz AC supply. The current flowing in the circuit would be

Options :

1. ✖ 14.3 A

2. ✖ 10 A

3. ✔ 20 A

4. ✖ 25 A

Question Number : 123 Question Id : 80089419568 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Three elements R = $\frac{1}{3}\ \Omega$; L = $\frac{1}{4}$ H and C = 3F are connected in series across input voltage, v (t) = sin 2t. the phase angle difference between supply voltage and current flowing through the circuit is

_____

Options :

1. ✖ 30^o

2. ✔ 45^o

3. ✖ 60^o

4. ✖ 75^o

Question Number : 124 Question Id : 80089419569 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The phase sequences available in a poly-phase system are given as, YBRYB, BYRBY, BRYBR, RBYRB, RYBRY, YRBYR, RYBRYB, RBYRBY, YBRYBR, YRBYRB, BRYBRY and BYRBYR.

How many phase sequences are actually available in it?

Options :

1. ✖ 9

2. ✖ 3

3. ✔ 2

4. ✖ 6

Question Number : 125 Question Id : 80089419570 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Identify the correct statement from the following

Options :

1. ✖ In Delta connected 3-ϕ system, phase current lags behind the respective line current by 30^0

2. ✔ In Delta connected 3-ϕ system, line current lags behind the respective phase current by 30^0

3. ✖ In Star connected 3-ϕ system, the phasor sum of all the phase voltages is zero

4. ✖ In Star connected 3-ϕ system, line voltage lags behind the respective phase voltage by 30^0

Question Number : 126 Question Id : 80089419571 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A transformer exhibits maximum efficiency , when the

Options :

1. ✔ variable loss = constant loss

2. ✖ Primary copper loss = Secondary copper loss

3. ✖ no load iron loss = no load copper loss

4. ✖ no load iron loss = full load copper loss

Question Number : 127 Question Id : 80089419572 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Generally, the no-load current drawn by a transformer is _____ of the full-load current.

Options :

1. ✖ 10 to 15 %

2. ✔ 2 to 5 %

3. ✖ 0.2 to 0.5 %

4. ✖ 20 to 30 %

Question Number : 128 Question Id : 80089419573 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which of the following conditions are not necessary for parallel operation of two, 1-ϕ transformers that these should have

i) Same polarity ii) KVA rating iii) efficiency

iv) voltage regulation v) $\frac{X}{R}$ ratio

Options :

1. ✖ (i) and (ii) only

2. ✖ (i) and (iv) only

3. ✔ (ii) and (iii) only

4. ✖ (ii) and (v) only

Question Number : 129 Question Id : 80089419574 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The full-load copper loss of a transformer is 160 W. At half full-load, the copper loss will be

Options :

1. ✖ 120 W

2. ✖ 160 W

3. ✖ 80 W

4. ✔ 40 W

Question Number : 130 Question Id : 80089419575 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which of the following of the transformers can be determined only from Sumpner's test?

Options :

1. ✖ Voltage regulation

2. ✖ Stray losses

3. ✔ Temperature rise

4. ✖ All-day efficiency

Question Number : 131 Question Id : 80089419576 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Distribution transformers have core losses

Options :

1. ✖ greater than copper losses

2. ✖ equal to copper losses

3. ✔ less than copper losses

4. ✖ half-of-the copper losses

Question Number : 132 Question Id : 80089419577 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which of the following 3-phase connection is used for small h.v transformers?

Options :

1. ✖ Delta- Delta

2. ✔ Star- Star

3. ✖ Delta – Star

4. ✖ Star- Delta

Question Number : 133 Question Id : 80089419578 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A hydraulic turbine with rated speed of 250 rpm is driving a synchronous generator. The number of poles for which the generator has to be designed to generate electrical energy at 50 Hz is,

Options :

1. ✖ 16

2. ✖ 8

3. ✖ 12

4. ✔ 24

Question Number : 134 Question Id : 80089419579 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If the excitation is kept constant in an alternator, then the excitation voltage variation with speed would be

Options :

1. ✔ Linear

2. ✖ First linear and then horizontal

3. ✖ First curved and then linear

4. ✖ First linear and then curved upwards

Question Number : 135 Question Id : 80089419580 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The total number of inputs required to be given to an alternator, for all practical applications is

Options :

1. ✖ 1

2. ✔ 2

3. ✖ 3

4. ✖ 4

Question Number : 136 Question Id : 80089419581 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

While starting a 3-phase synchronous motor, its field winding should be

Options :

1. ✔ Short circuited

2. ✖ Kept open

3. ✖ Connected to a d.c source

4. ✖ Connected to an a.c source

Question Number : 137 Question Id : 80089419582 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Ignoring the effects of armature reaction, if the excitation of a synchronous motor running on constant load is decreased from its normal value, it results in increase of,

Options :

1. ✔ both the armature current and power factor angle

2. ✖ the back e.m.f. with a decrease in armature current

3. ✖ the armature current with a decrease in power factor angle

4. ✖ the torque angle with a decrease in back e.m.f.

Question Number : 138 Question Id : 80089419583 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

When the load on a 3-phase Induction Motor is increased from No-load to full- load

Options :

1. ✔ Both p.f and slip increases

2. ✖ Both p.f and slip decreases

3. ✖ p.f increases but slip decreases

4. ✖ p.f decreases but slip increases

Question Number : 139 Question Id : 80089419584 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Placing of rotor copper bars of a 3 - Φ induction motors deep inside the slots, results in,

Options :

1. ✔ increase of starting torque

2. ✖ reduction of copper losses

3. ✖ improvement of efficiency

4. ✖ increase of power factor

Question Number : 140 Question Id : 80089419585 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following losses can be obtained during blocked –rotor test on a 3-phase Induction motor?

Options :

1. ✖ Stator core loss

2. ✖ Rotor core loss

3. ✖ Friction and windage loss

4. ✔ Stator and rotor copper loss

Question Number : 141 Question Id : 80089419586 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

An induction motor can be run at synchronous speed when,

Options :

1. ✔ an external e.m.f. is injected into the rotor circuit

2. ✖ it is run in reverse direction

3. ✖ it is run on zero load

4. ✖ it is run on voltage higher than the rated voltage

Question Number : 142 Question Id : 80089419587 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The motor, best suited for domestic refrigerator is

Options :

1. ✖ Universal motor

2. ✖ Shaded pole motor

3. ✔ Capacitor start single phase Induction Motor

4. ✖ 3-phase Induction motor

Question Number : 143 Question Id : 80089419588 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A Power plant consumes 3600 tons of coal per day. If the coal has an average energy content of 10,000 Btu/lb. Assume

15% efficiency. The plant power output in MW is

Options :

1. ✖ 200 MW

2. ✖ 232 MW

3. ✔ 132 MW

4. ✖ 100 MW

Question Number : 144 Question Id : 80089419589 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Two Generating stations A and B have the same consumers connected. However, customer behaviour is different

when connected to them. In such a case, If plant A and B have diversity factors of 2 and 1.5 respectively, then

Options :

1. ✖ Plant A installed capacity is larger than Plant B installed capacity.

2. ✔ Plant B installed capacity is larger than Plant A installed capacity.

3. ✖ Plant A and B have the same installed capacities.

4. ✖ Diversity factor has no effect with plant installed capacity.

Question Number : 145 Question Id : 80089419590 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The coolant water in a Pressurised Water Reactor is

Options :

1. ✖ boiled in the reactor core

2. ✖ pressurised to work as moderator

3. ✖ used for controlling the chain reaction

4. ✔ pressurised to prevent water from boiling in the core

Question Number : 146 Question Id : 80089419591 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A hydel plant supplied by a river with a discharge 3000 m^3/sec at a head of 30 m, with a plant efficiency of 79%, develop a power of

Options :

1. ✔ 697.50 MW

2. ✖ 345.2 0MW

3. ✖ 823.70 MW

4. ✖ 423.12 MW

Question Number : 147 Question Id : 80089419592 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Out of the following electric power generating plants, which one is renewable and non- intermittent in nature?

Options :

1. ✖ Wind power plant.

2. ✖ Solar PV power plant.

3. ✖ Ocean wave energy power plant.

4. ✔ Hydroelectric power plant.

Question Number : 148 Question Id : 80089419593 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Resistance switching is normally used in

Options :

1. ✔ Air blast Circuit Breaker

2. ✖ Oil Circuit Breaker

3. ✖ SF_6 Circuit Breaker

4. ✖ Vacuum Circuit Breaker

Question Number : 149 Question Id : 80089419594 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The Rate of Rise of Restriking Voltage (RRRV), on Opening, across the Circuit Breaker contacts will mainly depend on

Options :

1. ✖ the type of Circuit Breaker used.

2. ✔ the Line Parameters R,L,C.

3. ✖ the type of Fault or Disturbance happened.

4. ✖ the Contact material used.

Question Number : 150 Question Id : 80089419595 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

To protect a bus bar the relay used is

Options :

1. ✖ Ohm relay

2. ✔ Mho relay

3. ✖ Reactance relay

4. ✖ Over current relay

Question Number : 151 Question Id : 80089419596 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

With the same secondary burden, in which Overcurrent relay, the core saturation occurs at a very early state?

Options :

1. ✔ Definite time Overcurrent relay.

2. ✖ Inverse definite time Overcurrent relay.

3. ✖ Very Inverse Overcurrent relay.

4. ✖ Extremely Inverse Overcurrent relay.

Question Number : 152 Question Id : 80089419597 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

When a fault occurs on the bus-bar itself, there has to be a complete shutdown in case of, _____system.

Options :

1. ✖ double bus-bar

2. ✖ sectionalised double bus-bar

3. ✔ single bus-bar

4. ✖ sectionalised single bus-bar

Question Number : 153 Question Id : 80089419598 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A 3-phase Star/Delta Transformer rated for 11kV/6.6kV and Current Transformer on the low voltage side has a ratio of 300/5. Determine the ratio of the Current Transformer on the high voltage side.

Options :

1. ✖ $500:5$

2. ✖ $180:5$

3. ✖ $500:5/\sqrt{3}$

4. ✔ $180:5/\sqrt{3}$

Question Number : 154 Question Id : 80089419599 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The neutral of 10 MVA, 11 kV alternator is grounded through a resistance of 5 ohms. The earth fault relaying operates at 0.75 A. If CT ratio is 1000/5, the percentage of armature winding protected is

Options :

1. ✔ 88.2

2. ✖ 11.8

3. ✖ 10.0

4. ✖ 90.0

Question Number : 155 Question Id : 80089419600 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The equivalent radius of a bundle conductor having its 4 sub conductors of each radius r on the periphery of a circle of diameter d is given by,

Options :

1. ✖ $\left(r\frac{d^2}{2}\right)^{1/4}$

2. ✔ $\left(r\frac{d^3}{2}\right)^{1/4}$

3. ✖ $\left(r\frac{d^2}{4}\right)^{1/4}$

4. ✖ $\left(r\frac{d^3}{4}\right)^{1/4}$

Question Number : 156 Question Id : 80089419601 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The transmission efficiency increases with

Options :

1. ✖ decrease in power factor and increase in voltage level

2. ✖ decrease in power factor and decrease in voltage level

3. ✔ increase in power factor and increase in voltage level

4. ✖ increase in power factor and decrease in voltage level

Question Number : 157 Question Id : 80089419602 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The Range of the medium length transmissions line is

Options :

1. ✖ 50 km to 80 km

2. ✖ 10 km to 50 km

3. ✔ 80 km to 160 km

4. ✖ 170 km to 300 km

Question Number : 158 Question Id : 80089419603 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Bundled conductors are mainly used in high voltage overhead transmission lines to

Options :

1. ✖ reduce transmission line losses

2. ✔ reduce Corona

3. ✖ reduce sag

4. ✖ increase mechanical strength of the line

Question Number : 159 Question Id : 80089419604 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Identify the incorrect statement.

Options :

1. ✔ Corona increases with increase in spacing between the conductors.

2. ✖ Corona increases the effective Capacitance of the line.

3. ✖ Corona increases the electromagnetic and electrostatic interference with the communication system.

4. ✖ Corona increases with increases in system frequency.

Question Number : 160 Question Id : 80089419605 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Power control in HVDC link is achieved by

Options :

1. ✖ Varying D.C. link current

2. ✔ Varying D.C. link converter voltage

3. ✖ Line compensation

4. ✖ Power factor of load

Question Number : 161 Question Id : 80089419606 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Identify the correct and incorrect statements among the following, which refer to Sag in the overhead line conductors.

I. Catenary is the shape attained by the line conductor, if suspended from the towers of the same height.

II. With the increase in Temperature; sag and Tension in the conductor increases.

III. Sag is directly proportional to the span between the towers.

IV. Stringing charts are useful for adjusting sag and tension in the conductor.

Options :

1. ✖ I, II are correct, III, IV are incorrect

2. ✖ I, II, IV are correct, III is incorrect

3. ✔ I, IV are correct, II, III are incorrect

4. ✖ I, III, IV are correct, II is incorrect

Question Number : 162 Question Id : 80089419607 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The insulators used for High Voltage Transmission lines are

Options :

1. ✔ Suspension Insulators

2. ✖ Pin Insulators

3. ✖ Shackle Insulators

4. ✖ Cone Insulators

Question Number : 163 Question Id : 80089419608 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A string insulator has 4 disc insulator units. The voltage across the bottom most unit nearer to the line conductor is

33.33% of rated voltage. Its percentage string efficiency is

Options :

1. ✖ 25%

2. ✖ 33.33%

3. ✖ 66.66%

4. ✔ 75%

Question Number : 164 Question Id : 80089419609 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The sheathing of underground cables is commonly done by

Options :

1. ✔ lead

2. ✖ iron

3. ✖ copper

4. ✖ rubber

Question Number : 165 Question Id : 80089419610 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Two, single core cables made up of same type of core with equal dia, and same dielectric medium have distance from their surface to centre of the core equal to r_1, r_2 with $r_1 > r_2$ respectively. If both cables are exposed to same voltage stress, then the cable capacitances C_1, C_2 and leakage resistances R_1, R_2 per unit length will be related as

Options :

1. ✖ $C_1 = C_2$ and $R_1 = R_2$

2. ✖ $C_1 = C_2$ and $R_1 > R_2$

3. ✖ $C_1 > C_2$ and $R_1 = R_2$

4. ✔ $C_1 < C_2$ and $R_1 > R_2$

Question Number : 166 Question Id : 80089419611 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which of the following distribution systems is more reliable?

Options :

1. ✖ Radial system

2. ✔ Ring main system

3. ✖ Tree system

4. ✖ axial system

Question Number : 167 Question Id : 80089419612 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Identify the false statement among the following, which refer to illumination system.

Options :

1. ✖ Solid angle subtended by a Sphere at its center is 4π Steradians.

2. ✖ The unit for Luminous Intensity is Candela.

3. ✔ Phot and Lux are units of Illumination and 1Phot = 1,000 Lux.

4. ✖ Brightness is defined as the intensity of a source in a given direction divided by the Orthogonal projected area of the source in that direction.

Question Number : 168 Question Id : 80089419613 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A 60 W lamp gives a luminous flux of 1500 lumen. Its efficiency is

Options :

1. ✖ 1500 lumen/watt

2. ✖ 250 lumen/watt

3. ✔ 25 lumen/watt

4. ✖ 2.5 lumen/watt

Question Number : 169 Question Id : 80089419614 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Identify the incorrect statement among the following, which refer to the requirements of a good heating coil for indirect resistance heating.

Options :

1. ✖ It should have high specific resistance.

2. ✔ It should have a high temperature coefficient of resistance.

3. ✖ It should have a high melting point.

4. ✖ It should be free from oxidation.

Question Number : 170 Question Id : 80089419615 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The operation of a direct arc furnace requires,

Options :

1. ✖ high voltage

2. ✔ high current

3. ✖ high power factor

4. ✖ low current

Question Number : 171 Question Id : 80089419616 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In which type of Resistance Welding, the surface to be welded must be clean and dust and dirt free?

Options :

1. ✖ Spot welding.

2. ✖ Butt welding.

3. ✔ Seam welding.

4. ✖ Projection welding.

Question Number : 172 Question Id : 80089419617 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Steel rails are welded by _____ welding

Options :

1. ✖ Argon arc

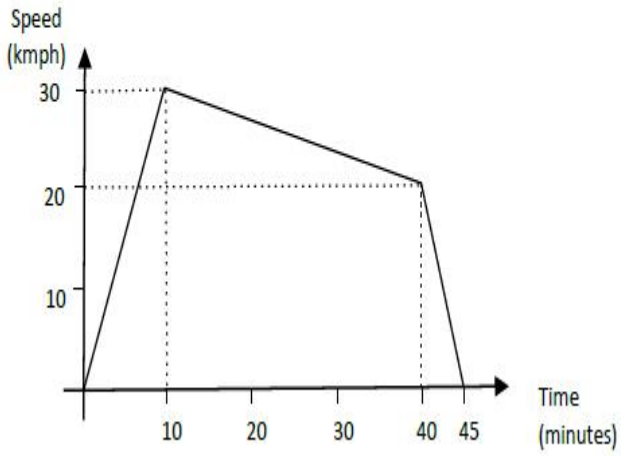
2. ✖ Resistance

3. ✔ Thermit

4. ✖ Gas

Question Number : 173 Question Id : 80089419618 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A suburban train service has the following Trapezoidal Speed-Time curve. Determine the distance between the two stations in km.



Options :

1. ✖ $\frac{35}{6}$ km

2. ✔ $\frac{95}{6}$ km

3. ✖ $\frac{115}{6}$ km

4. ✖ $\frac{135}{6}$ km

Question Number : 174 Question Id : 80089419619 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Specific energy consumption is minimum in

Options :

1. ✔ Main-line service

2. ✖ Sub-urban service

3. ✖ Urban service

4. ✖ For all types

Question Number : 175 Question Id : 80089419620 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Two, D.C series motors having identical rating and speed-current characteristics are mounted on the same axial,

driving the electric locomotive. If the train is running at constant speed and the wheel driven by motor A is slightly

larger in diameter as compared to the wheel driven by motor B, then

Options :

1. ✔ Motor A draws more current than motor B from the supply main.

2. ✖ Motor A draws less current than motor B from the supply main.

3. ✖ Motor A and B draw equal current from the supply main.

4. ✖ The current drawn by the motors A and B are independent of wheel diameters.

Question Number : 176 Question Id : 80089419621 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which of the following lamps emit monochromatic light?

Options :

1. ✖ Mercury vapor lamp, fluorescent tube

2. ✔ Mercury vapor lamp, sodium vapor lamp

3. ✖ Sodium vapor lamp, fluorescent tube

4. ✖ Neon lamp, fluorescent tube

Question Number : 177 Question Id : 80089419622 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Identify the correct and incorrect statements of the following, which refer to a Thermal Starter in a Fluorescent tube (FT) light circuit.

I. The bimetallic strips in the thermal starter, make contact with each other when no current is passing through.

II. The bimetallic strips in the thermal starter, make contact with each other when current start passing through.

III. Heater coil and bimetallic strips of the thermal starter are connected in parallel in the circuit.

IV. Heater coil and bimetallic strips of the thermal starter are connected in series in the circuit.

Options :

1. ✖ I, III are correct; II, IV are incorrect

2. ✖ II, IV are correct; I, III are incorrect

3. ✔ I, IV are correct; II, III are incorrect

4. ✖ II, III are correct; I, IV are incorrect

Question Number : 178 Question Id : 80089419623 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which type of starter is suitable for very high rating A.C. motors?

Options :

1. ✖ DOL Starter

2. ✔ Auto Transformer starter

3. ✖ Star - Delta starter

4. ✖ 4- Point starter

Question Number : 179 Question Id : 80089419624 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Pin insulators are designed for a voltage rating of _____, and they are uneconomical in the lines with voltages beyond_____.

Options :

1. ✖ 11kV, 11kV

2. ✖ 33kV, 66kV

3. ✔ 11kV, 33kV

4. ✖ 33kV, 132kV

Question Number : 180 Question Id : 80089419625 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

An electrical apparatus connected across a single phase 200V A.C supply mains. The supply system is neutral grounded through 5Ω resister. Also the apparatus is grounded through a 5Ω resister. Under insulation failure of the apparatus, what could be the approximate current that may flow through the body of a person touching the apparatus? Take body resistance of the person equal to 1000Ω.

Options :

1. ✔ 0.1 A

2. ✖ 1 A

3. ✖ 5 A

4. ✖ 10 A

Question Number : 181 Question Id : 80089419626 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Humming in power transformers is due to

Options :

1. ✖ rupture of the insulation between windings

2. ✔ magnetostatic field between the windings and core

3. ✖ electrostatic field between the windings and core

4. ✖ break of the windings

Question Number : 182 Question Id : 80089419627 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The potential divider method of biasing is used in amplifiers to

Options :

1. ✖ Reduce the d.c base current

2. ✖ Limit the input a.c signal going to the base

3. ✔ Make the operating point almost independent of 'β'

4. ✖ Reduce the cost of the circuit

Question Number : 183 Question Id : 80089419628 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The main current crossing the collector junction in a normally biased NPN transistor is

Options :

1. ✖ a diffusion current

2. ✖ a hole current

3. ✖ equal to the base current

4. ✔ a drift current

Question Number : 184 Question Id : 80089419629 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If the output voltage of a bridge rectifier is 200 V, the PIV of each diode will be

Options :

1. ✖ $\sqrt{2}$ (200) Volts

2. ✖ $\frac{2(200)}{\pi}$ Volts

3. ✖ π (200) Volts

4. ✔ $(\pi/2)$ (200) Volts

Question Number : 185 Question Id : 80089419630 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A FET has a gate source bias of -2v. The a.c input signal is ± 1.2v. The class of operation will be

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ AB

Question Number : 186 Question Id : 80089419631 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The main function of the transformer used in the output of a power amplifier is to

Options :

1. ✖ Safeguard the transistor against overheating

2. ✖ Increase the voltage gain

3. ✖ Step-up the voltage

4. ✔ Match the load impedance with dynamic output resistance of the transistor

Question Number : 187 Question Id : 80089419632 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

In RC coupled amplifier the component producing distortion is

Options :

1. ✖ Capacitor

2. ✖ Resistor

3. ✔ Transistor

4. ✖ Source

Question Number : 188 Question Id : 80089419633 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which of the following circuit is most suitable to generate 1 MHz signal?

Options :

1. ✖ Phase shift Oscillator

2. ✖ Wein bridge Oscillator

3. ✔ Colpitt's Oscillator

4. ✖ Astable multivibrator

Question Number : 189 Question Id : 80089419634 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The ASCII code is a _____ bit code.

Options :

1. ✖ 3

2. ✖ 4

3. ✔ 7

4. ✖ 8

Question Number : 190 Question Id : 80089419635 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following Gate will give high output if and only if it's both inputs are same?

Options :

1. ✖ NAND

2. ✖ NOR

3. ✖ EX-OR

4. ✔ EX-NOR

Question Number : 191 Question Id : 80089419636 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following gates is known as universal gate?

Options :

1. ✖ OR

2. ✔ NOR

3. ✖ AND

4. ✖ NOT

Question Number : 192 Question Id : 80089419637 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Identify the correct statement among the following, which refer to IGBT power electronic devices.

Options :

1. ✖ It is a controlled turn-on & turn-off device, and has bidirectional current and bipolar voltage withstanding capabilities.

2. ✖ It is a controlled turn-on & uncontrolled turn-off device, and has unidirectional current and bipolar voltage withstanding capabilities.

3. ✔ It is a controlled turn-on & turn-off device, and has unidirectional current and unipolar voltage withstanding capabilities.

4. ✖

It is a controlled turn-on & uncontrolled turn-off device, and has unidirectional current and unipolar voltage withstanding capabilities.

Question Number : 193 Question Id : 80089419638 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A voltage source 200 sin (314t) is applied to a thyristor controlled half wave rectifier with resistive load of 50 ohms.

If the firing angle is 30^0 with respect to supply voltage waveform, the average power in the load is

Options :

1. ✖ 90.6 Watts

2. ✖ 86.3 Watts

3. ✖ 60.8 Watts

4. ✔ 70.6 Watts

Question Number : 194 Question Id : 80089419639 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Identify the correct statement, which refers to a snubber circuit for SCR protection.

Options :

1. ✖ Snubber circuit consists of series RL components, and it is connected in series with SCR for protection against di/dt of gate current.

2. ✔

Snubber circuit consists of series RL components, and it is connected in series with SCR for protection against di/dt of anode current.

3. ✖ Snubber circuit consists of series RC components, and it is connected in parallel with SCR for protection against dv/dt rising gate voltage.

4. ✖ Snubber circuit consists of series RC components, and it is connected in parallel with SCR for protection against dv/dt rising anode voltage.

Question Number : 195 Question Id : 80089419640 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

In a three-phase half wave rectifier, each diode conducts for a duration of

Options :

1. ✖ 180^0

2. ✖ 120^0

3. ✖ 90^0

4. ✔ 60^0

Question Number : 196 Question Id : 80089419641 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

In a single-phase full converter, If $\alpha$and $\beta$are firing and extinction angles respectively, then the load current is

Options :

1. ✖ continuous if $(\beta - \alpha) < \pi$

2. ✖ discontinuous if $(\beta - \alpha) = \pi$

3. ✖ discontinuous if $(\beta - \alpha) > \pi$

4. ✔ discontinuous if $(\beta - \alpha) < \pi$

Question Number : 197 Question Id : 80089419642 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For a D.C-D.C chopper with chopping frequency of 'f' Hz, when the supply voltage V_s is applied for a time of T_{on},

the value of output voltage is calculated as, V_o = _____.

Options :

1. ✖ $V_s / f\ T_{on}$

2. ✖ $V_s f\ / T_{on}$

3. ✔ $V_s f\ T_{on}$

4. ✖ $V_s\ T_{on} / f$

Question Number : 198 Question Id : 80089419643 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In case of D.C chopper step-down operation, with k as duty cycle, the output r.m.s of fundamental voltage in

terms of input voltage V_S is

Options :

1. ✖ kV_S

2. ✖ k^2V_S

3. ✔ $\sqrt{k}V_S$

4. ✖ $\frac{V_S}{k}$

Question Number : 199 Question Id : 80089419644 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

RC snubber circuit is used to limit the rate of

Options :

1. ✖ rise of current in SCR

2. ✔ rise of voltage across SCR

3. ✖ conduction period

4. ✖ rise of power across SCR

Question Number : 200 Question Id : 80089419645 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The advantage of using PWM switching in voltage source inverters is,

Options :

1. ✖ filter size is increased

2. ✖ output voltage cannot be controlled

3. ✖ harmonics are not eliminated from the output wave

4. ✔ filter size is reduced