Telangana State Council of Higher Education

TS ECET [FDH & B.Sc. (Mathematics)] - 2018

Date of Examination: 09-05-2018

Time of Examination: 10.00 A.M. to 1.00 P.M.

Master Question Paper Copy

Electrical and Electronics Engineering

Notations :

1.Options shown in green color and with ✔ icon are correct.

2.Options shown in red color and with ✖ icon are incorrect.

Question Number : 1 Question Id : 5105296013 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If A is square matrix of order 3 and if the matrix obtained by replacing the elements of A with their corresponding cofactors is $\begin{bmatrix} 1 & -2 & 1 \\ 4 & -5 & -2 \\ -2 & 4 & 1 \end{bmatrix}$ then determinant of A is _____

Options :

1. ✖ 9

2. ✖ 16

3. ✔ 3

4. ✖ 4

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Question Number : 2 Question Id : 5105296014 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The system of equations $x+y+z=6, x+2y+3z=10, x+2y+\lambda z=K$ is

inconsistent for $\lambda=l$ and $K\neq m$, then (l, m)=

Options :

1. ✖ (3, 7)

2. ✔ (3, 10)

3. ✖ (7, 10)

4. ✖ (10, 4)

Question Number : 3 Question Id : 5105296015 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If A is a square matrix of order n and A=P+Q, where P is symmetric and Q is non symmetric matrices, then P-Q =

Options :

1. ✖ A

2. ✔ A^T

3. ✖ $A+A^T$

4. ✖ $A-A^T$

Question Number : 4 Question Id : 5105296016 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $A=\begin{bmatrix}1 & 2 & 2\\ 2 & 1 & x\\ -2 & y & -1\end{bmatrix}$ is orthogonal then _____

Options :

1. ✔ $x=-2, y=2$

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2. ✖ $x=-2, y=-2$

3. ✖ $x=2, y=2$

4. ✖ $x=2, y=-2$

Question Number : 5 Question Id : 5105296017 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $X=\begin{bmatrix}1 & 1 & 1\\ 1 & 2 & 3\\ 1 & 3 & k\end{bmatrix}$ is singular matrix then k =

Options :

1. ✖ 2

2. ✖ 3

3. ✖ 4

4. ✔ 5

Question Number : 6 Question Id : 5105296018 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $\frac{7x-17}{(x-1)(x-3)}=\frac{m}{x-1}+\frac{k}{x-3}$, then m − k -1=

Options :

1. ✖ 1

2. ✔ 2

3. ✖ 3

4. ✖ -2

Question Number : 7 Question Id : 5105296019 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

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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 : 8 Question Id : 5105296020 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The solution of the simultaneous equations $x+y=\frac{2\pi}{3}$ and $\cos x+\cos y=\frac{3}{2}$ where x and y are real is _____

Options :

1. ✖ $x=\frac{\pi}{3}, y=\pi$

2. ✖ $x=\pi, y=\frac{\pi}{3}$

3. ✖ $x=\pi, y=\frac{\pi}{2}$

4. ✔ does not exist.

Question Number : 9 Question Id : 5105296021 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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If both the distinct roots of the equation $|\sin x|^2 + |\sin x| + b = 0$ in $[0, \pi]$ are real then all the values of b lie in the interval _____

Options :

1. ✖ [-2, 0]

2. ✖ (-2, 0)

3. ✖ [-2, 0)

4. ✔ (-2, 0]

Question Number : 10 Question Id : 5105296022 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

$$\frac{a\cos A + b\cos B + c\cos C}{2s} =$$

Options :

1. ✖ Δ

2. ✖ $\frac{1}{R}$

3. ✔ $\frac{r}{R}$

4. ✖ $\frac{\Delta}{R}$

Question Number : 11 Question Id : 5105296023 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $\cos A = \frac{3}{4}$, then the value of $32\sin\frac{A}{2}.\sin\frac{5A}{2}$

Options :

1. ✔ 11

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2. ✖ 36

3. ✖ 27

4. ✖ 10

Question Number : 12 Question Id : 5105296024 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $z_1 = 3(\cos 15^0 + i \sin 15^0)$ and $z_2 = 5(\cos 63^0 + i \sin 63^0)$ then $\frac{z_1}{z_2} =$

Options :

1. ✖ $\frac{3}{5}\left[\cos 48^0 + i \sin 48^0\right]$

2. ✔ $\frac{3}{5}\left[\cos 48^0 - i \sin 48^0\right]$

3. ✖ $\frac{3}{5}\left[\cos 78^0 + i \sin 78^0\right]$

4. ✖ $\frac{5}{3}\left[\cos 78^0 - i \sin 78^0\right]$

Question Number : 13 Question Id : 5105296025 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

$2\,Tan\frac{1}{7} + Tan^{-1}\frac{1}{13} =$

Options :

1. ✔ $Tan^{-1}\frac{23}{61}$

2. ✖ $Tan^{-1}\frac{14}{61}$

3. ✖ $Tan^{-1}\frac{32}{61}$

4. ✖ $Tan^{-1}\frac{3}{51}$

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Question Number : 14 Question Id : 5105296026 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $\cos 20^0 \cos 40^0 \cos 80^0 = p$, then $p =$

Options :

1. ✖ $\frac{1}{2}$

2. ✖ $\frac{1}{4}$

3. ✔ $\frac{1}{8}$

4. ✖ 1

Question Number : 15 Question Id : 5105296027 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

$\sin A \sin (120^0 - A) \sin (120^0 + A) =$

Options :

1. ✖ $\frac{1}{4} \sin A$

2. ✔ $\frac{1}{4} \sin 3A$

3. ✖ $\frac{1}{4} \cos A$

4. ✖ $\frac{1}{4} \cos 3A$

Question Number : 16 Question Id : 5105296028 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

$\text{Cos } 5^0 - sin\ 25^0 =$

Options :

1. ✖ $\sin 30^0$

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2. ✔ $\sin 35^0$

3. ✖ $\sin 45^0$

4. ✖ $\sin 55^0$

Question Number : 17 Question Id : 5105296029 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If n is the length of perpendicular from the point $(3,-2)$ to the straight line

$L \equiv 12x-5y+6=0$ and m is distance of that line L=0 from $12x-5y-7=0$, then ____

Options :

1. ✖ $n+m=2$

2. ✖ $n=m$

3. ✖ $n=2m$

4. ✔ $n=4m$

Question Number : 18 Question Id : 5105296030 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The equation of the straight line passing through (2, 3) and perpendicular to the line

$4x-3y=10$ is _____

Options :

1. ✖ $3x+4y+18=0$

2. ✔ $3x+4y-18=0$

3. ✖ $3x-4y-18=0$

4. ✖ $3x-4y+18=0$

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Question Number : 19 Question Id : 5105296031 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

L is a straight line passing through the point P(1, 2) such that P bisects the portion of the line intercepted between the coordinate axes, then the perpendicular distance of line L from the origin is _____

Options :

1. ✖ $\frac{1}{\sqrt{5}}$

2. ✖ $\frac{2}{\sqrt{5}}$

3. ✖ $\frac{3}{\sqrt{5}}$

4. ✔ $\frac{4}{\sqrt{5}}$

Question Number : 20 Question Id : 5105296032 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the focus of the parabola $(y-2)^2 = 4(x-1)$ is (a, b), then a+b =

Options :

1. ✖ (-1, -2)

2. ✖ (1, 2)

3. ✖ (2, 1)

4. ✔ (2, 2)

Question Number : 21 Question Id : 5105296033 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The function $y = |x| \quad -\infty < x < \infty$ is _____

Options :

1. ✖ Differentiable at x=0

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2. ✖ not continuous at x=0

3. ✔ continuous and differentiable at $x \neq 0$

4. ✖ continuous but not differentiable at $x \neq 0$

Question Number : 22 Question Id : 5105296034 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

$$\lim_{x\to 0}\left(\frac{\sqrt{1-\cos 2x}}{x}\right)$$

Options :

1. ✔ Does not exist

2. ✖ 1

3. ✖ -1

4. ✖ 0

Question Number : 23 Question Id : 5105296035 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $f(x) = |x^2 - 3x + 2|$ then $\frac{df}{dx} =$

Options :

1. ✔ 2x-3 when x > 2

2. ✖ 3-2x, when x <1

3. ✖ 3-2x when x>2

4. ✖ 2x+3,when 1<x<2

Question Number : 24 Question Id : 5105296036 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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If $Z = Log_e\left(\frac{xy}{x+y}\right)$, then $x\frac{\partial Z}{\partial x} + y\frac{\partial Z}{\partial y} =$

Options :

1. ✖ 0

2. ✖ 2Z

3. ✔ 1

4. ✖ $\frac{Z}{2}$

Question Number : 25 Question Id : 5105296037 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Two cars with equal speed V started from a place are such that one is moving towards East and the other is moving towards North. The rate at which they are separated from each other when they travel same distance is _____

Options :

1. ✔ $V\sqrt{2}$

2. ✖ $\frac{V}{\sqrt{2}}$

3. ✖ $\frac{\sqrt{2}}{V}$

4. ✖ $2V^2$

Question Number : 26 Question Id : 5105296038 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The derivative of $\sin x^2$ with respect to x^5 is _____

Options :

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1. ✖ $\frac{\cos x^2}{5x^4}$

2. ✖ $\frac{2\cos x^2}{5x^4}$

3. ✔ $\frac{2\cos x^2}{5x^3}$

4. ✖ $\frac{2\sin x^2}{5x^4}$

Question Number : 27 Question Id : 5105296039 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $y = x^y$ then $\frac{dy}{dx} =$

Options :

1. ✖ $\frac{y}{x(1-y\log x)}$

2. ✔ $\frac{y^2}{x(1-y\log x)}$

3. ✖ $\frac{y^2}{x(1+y\log x)}$

4. ✖ $\frac{y}{(1-y\log x)}$

Question Number : 28 Question Id : 5105296040 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $x = at^2, y = 2at$, then $\frac{d^2y}{dx^2} =$

Options :

1. ✖ $-\frac{1}{t^2}$

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2. ✖ $-\frac{1}{2at}$

3. ✔ $-\frac{1}{2at^2}$

4. ✖ $-\frac{1}{2at^4}$

Question Number : 29 Question Id : 5105296041 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $I_1 = \int_0^\infty e^{-x} x^n dx$, then $\int_0^\infty e^{-x^2} x^{2n+1} dx =$

Options :

1. ✖ 0

2. ✔ $\frac{I_1}{2}$

3. ✖ $\frac{I_1}{3}$

4. ✖ $2I_1$

Question Number : 30 Question Id : 5105296042 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $\int \frac{\text{Sin}\,2x}{\text{Sin}\,5x\ \text{Sin}\,3x} dx = A \log \text{Sin}\,3x + B \log \text{Sin}\,5x + C$, then A +B =

Options :

1. ✖ 2/7

2. ✖ 1/3

3. ✖ -2/5

4. ✔ 2/15

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Question Number : 31 Question Id : 5105296043 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The area of the region bounded by the curve $y = x^2 - x$, x –axis and the line x=2 is _____

Options :

1. ✖ 5/4

2. ✖ 5/3

3. ✔ 5/6

4. ✖ 5/2

Question Number : 32 Question Id : 5105296044 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $0 < x < \frac{\pi}{2}$, then $\int \frac{sinx+cos\,x}{\sqrt{1+sin\,2x}}\,dx =$

Options :

1. ✖ $\frac{1}{x}+c$

2. ✔ $x+c$

3. ✖ $2x+c$

4. ✖ $\frac{2}{x}+c$

Question Number : 33 Question Id : 5105296045 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

$\int \frac{x^4+1}{x^2+1}\,dx =$

Options :

1. ✖ $\frac{x^3}{3}+x+2Tan^{-1}x+c$

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2. ✖ $\frac{x^3}{3}+x+Tan^{-1}x+c$

3. ✔ $\frac{x^3}{3}-x+2Tan^{-1}x+c$

4. ✖ $\frac{x^3}{3}-x+Tan^{-1}x+c$

Question Number : 34 Question Id : 5105296046 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

$\int \frac{e^x(1-x)}{x^2}dx =$

Options :

1. ✖ $-\frac{1}{xe^x}+C$

2. ✖ $\frac{1}{xe^x}+C$

3. ✔ $-\frac{1}{x}e^x+C$

4. ✖ xe^x+C

Question Number : 35 Question Id : 5105296047 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

$\int_0^{\pi/2} \frac{\sin x}{\sin x+\cos x}dx =$

Options :

1. ✔ $\frac{\pi}{4}$

2. ✖ $\frac{\pi}{6}$

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3. ✖ $\frac{\pi}{8}$

4. ✖ π

Question Number : 36 Question Id : 5105296048 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

$$\int_0^{\pi/2} \sin^4 x \cos^2 x \, dx =$$

Options :

1. ✖ $\frac{\pi}{12}$

2. ✔ $\frac{\pi}{32}$

3. ✖ $\frac{\pi}{42}$

4. ✖ $\frac{\pi}{2}$

Question Number : 37 Question Id : 5105296049 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The solution of $\left(x+2y^3\right)\frac{dy}{dx}=y$

Options :

1. ✖ $y=x^3+cx$

2. ✔ $x=y^3+cy$

3. ✖ $x=y^2+cy$

4. ✖ $y=x^3+cy^2$

Question Number : 38 Question Id : 5105296050 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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The general solution of $\frac{dy}{dx}=\frac{x^2+4x-9}{x+2}$ is _____

Options :

1. ✖ $y=(x+2)^2-13\log|x+2|+c$

2. ✖ $y=(x+2)^2-5\log|x+2|+c$

3. ✖ $y=\frac{x^2}{2}+2x+13\log|x+2|+c$

4. ✔ $y=\frac{x^2}{2}+2x-13\log|x+2|+c$

Question Number : 39 Question Id : 5105296051 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The differential equation representing the family of curves $y^2=2c(x+\sqrt{c})$, where c being a positive parameter is of _____

Options :

1. ✖ Order 3

2. ✖ Order 2

3. ✔ degree 3

4. ✖ degree 1

Question Number : 40 Question Id : 5105296052 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The differential equation formed by eliminating the arbitrary constants a and b from the

Equation $\frac{x}{a}+\frac{y}{b}=1$ is _____

Options :

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1. ✖ $x\ y' = 1$

2. ✖ $x\ y'' = 0$

3. ✔ $y'' = 0$

4. ✖ $y'' = 1$

Question Number : 41 Question Id : 5105296053 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The solution of the differential equation $\frac{dy}{dx} = (1+x^2)(1+y^2)$ is _____

Options :

1. ✔ $Tan^{-1}y = x + \frac{x^3}{3} + c$

2. ✖ $Tan^{-1}y = x - \frac{x^3}{3} + c$

3. ✖ $Cot^{-1}y = x + \frac{x^3}{3} + c$

4. ✖ $Sin^{-1}y = x + \frac{x^3}{3} + c$

Question Number : 42 Question Id : 5105296054 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The solution of the differential equation $y\,dx - x\,dy + \log x\,dx$ is _____

Options :

1. ✖ $c\,x + y + (1-\log x) = 0$

2. ✔ $c\,x - y - (1+\log x) = 0$

3. ✖ $c\,y + x + \log x - 1 = 0$

4. ✖ $c\,x - y + (1+\log x) = 0$

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Question Number : 43 Question Id : 5105296055 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The general solution of the equation $(D^2 - D - 2)y = \sin 2x$,$(D = \frac{d}{dx})$ is _____

Options :

1. ✔ $y = c_1e^{-x} + c_2e^{2x} + \frac{1}{20}(\cos 2x - 3\sin 2x)$

2. ✖ $y = c_1e^{-x} + c_2e^{-2x} + \frac{1}{20}(\cos 2x + 3\sin 2x)$

3. ✖ $y = c_1e^{-x} + c_2e^{2x} + \frac{1}{20}(\cos 2x - 3\sin 3x)$

4. ✖ $y = c_1e^{x} + c_2e^{-2x} + \frac{1}{20}(\cos 2x + 3\sin 2x)$

Question Number : 44 Question Id : 5105296056 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The particular integral of $(D^2 - 5D + 6)y = e^{4x}$ is _____

Options :

1. ✖ e^{4x}

2. ✖ $-e^{4x}$

3. ✔ $\frac{1}{2}e^{4x}$

4. ✖ $\frac{1}{4}e^{4x}$

Question Number : 45 Question Id : 5105296057 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If L[f(t)] denotes the Laplace Transform of f (t) , then $L[t^2e^{-2t}] =$

Options :

1. ✖ $\frac{1}{(s+2)^3}$

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2. ✔ $\frac{2}{(s+2)^3}$

3. ✖ $\frac{1}{(s+2)^2}$

4. ✖ $\frac{2}{(s+2)^2}$

Question Number : 46 Question Id : 5105296058 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

$f:\mathbb{R}\to\mathbb{R},\ f(x)=x^2,-\pi\le x\le\pi$ and $f(x+2\pi)=f(x),\forall x\in\mathbb{R}$. If the Fourier series of

f(x) is represented as $f(x)=\sum_{n=0}^{\infty}a_n\cos nx$, then $a_0=$ _____

Options :

1. ✖ $\frac{2\pi^2}{3}$

2. ✔ $\frac{\pi^2}{3}$

3. ✖ $\frac{4\pi^2}{3}$

4. ✖ $\frac{5\pi^2}{3}$

Question Number : 47 Question Id : 5105296059 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

$f(t)=2t^2-5,-2\le t\le 2$ and $f(t+4)=f(t)$. If $2t^2-5=\sum_{n=0}^{\infty}A_nCos\left(\frac{n\pi t}{2}\right)$, then $A_1=$

Options :

1. ✖ 0

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2. ✔ $\frac{-32}{\pi^2}$

3. ✖ $\frac{1-(-1)^n}{n}\frac{2}{\pi^2}$

4. ✖ $\frac{16}{\pi^2}$

Question Number : 48 Question Id : 5105296060 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the Laplace transform of a function f(t) is F(S) , then $\int_0^\infty f(t)dt =$

Options :

1. ✖ F(1)

2. ✖ $F(\infty)$

3. ✔ F(0)

4. ✖ F(S-1)

Question Number : 49 Question Id : 5105296061 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Mean deviation from median for the data 340, 150, 210, 240, 300, 310, 320

is approximately equal to _____

Options :

1. ✔ 52.8

2. ✖ 54.8

3. ✖ 53.8

4. ✖ 51.8

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Question Number : 50 Question Id : 5105296062 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Two numbers are chosen at random from {1, 2, 3, 4, 5, 6, 7, 8} at a time. The probability that smaller of the two numbers is not more than 3 is

Options :

1. ✗ $\frac{7}{14}$

2. ✓ $\frac{9}{14}$

3. ✗ $\frac{8}{14}$

4. ✗ $\frac{10}{14}$

Display Number Panel: Yes
Group All Questions: No

Question Number : 51 Question Id : 5105296063 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The dimensional formula for angular momentum is _____

Options :

1. ✗ $M L T^{-1}$

2. ✗ $M L^{-1} T^{-1}$

3. ✓ $M L^{2} T^{-1}$

4. ✗ $M^{1}L^{2}T^{-2}$

Question Number : 52 Question Id : 5105296064 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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Which of the following has not been expressed in proper unit?

Options :

1. ✖ stress/strain = N/m^2

2. ✖ surface tension = N/m

3. ✔ energy = Kg × m/s

4. ✖ pressure = N/m^2

Question Number : 53 Question Id : 5105296065 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Two adjacent sides of a parallelogram are represented by the two vectors I+2J+3K

and 3I-2J+K. What is the area of the parallelogram?

Options :

1. ✖ 8

2. ✔ $8\sqrt{3}$

3. ✖ $3\sqrt{8}$

4. ✖ 192

Question Number : 54 Question Id : 5105296066 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Given the points A= (0, a) and B= (1, 2), what is the value of a if the magnitude of

the vector $\overline{AB}$ is 1?

Options :

1. ✖ 3

2. ✔ 1

3. ✖ 4

4. ✖ 2

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Question Number : 55 Question Id : 5105296067 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If A and B are perpendicular, vector A = 5i+7j-3k and B = 2i+2j-ak. What is the value of a?

Options :

1. ✖ -2

2. ✖ 8

3. ✖ -7

4. ✔ -8

Question Number : 56 Question Id : 5105296068 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A block of mass 2 Kg rests on a rough inclined plane making an angle of 30° with the horizontal. The coefficient of static friction between the block and plane is 0.7. The frictional force on the block is _____

Options :

1. ✖ 9.8 N

2. ✔ $0.7 \times 9.8 \times \sqrt{3}$ N

3. ✖ $9.8 \times \sqrt{3}$ N

4. ✖ 0.7×0.9 N

Question Number : 57 Question Id : 5105296069 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A body sliding on a smooth inclined plane required 4 seconds to reach the bottom starting from rest at the top. How much time does it take to cover one-fourth the distance starting from rest at top?

Options :

1. ✖ 1 second

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2. ✔ 2 seconds

3. ✖ 4 seconds

4. ✖ 16 seconds

Question Number : 58 Question Id : 5105296070 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A body of mass 2 Kg is hung on a spring balance mounted vertically in a lift. If the lift descends with an acceleration equal to the acceleration due to gravity g, the reading on the spring balance will be changed by _____

Options :

1. ✖ 2 Kg

2. ✖ 4 Kg

3. ✖ 2/g Kg

4. ✔ zero

Question Number : 59 Question Id : 5105296071 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If g is the acceleration due to gravity at the earth surface, the gain in the potential energy of an object of mass is raised, then the surface of the earth to a height equal to the radius R of earth is _____

Options :

1. ✔ (½)mgR

2. ✖ 2mgR

3. ✖ mgR

4. ✖ (¼)mgR

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Question Number : 60 Question Id : 5105296072 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A ship of mass 3×10^7Kg initially at rest is pulled by a force of 5×10^4 N through a distance of 3 m. Assume that the resistance due to water is negligible, the speed of the ship is _____

Options :

1. ✖ 1.5 m/s

2. ✖ 60m/s

3. ✔ 0.1 m/s

4. ✖ 5 m/s

Question Number : 61 Question Id : 5105296073 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Clock A is based on oscillations of a spring and clock B is based on pendulum motion. Both clocks run at the same rate on earth. On a planet having the same density as earth but twice the radius, _____

Options :

1. ✖ A will run faster than B

2. ✔ B will run faster than A

3. ✖ both run at the same rate as on earth

4. ✖ both run at equal rates but not the same as on earth

Question Number : 62 Question Id : 5105296074 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The potential energy at a point r when a particle is moving under the central force $F = -Kr^2$ is _____

Options :

1. ✖ K^2/r

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2. ✖ K/r

3. ✖ K/r^2

4. ✔ $-K/r$

Question Number : 63 Question Id : 5105296075 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When the body is acted upon by a resultant force, then work done by the resultant force is equal to _____

Options :

1. ✖ its initial kinetic energy

2. ✖ its initial potential energy

3. ✖ change in the kinetic energy

4. ✔ change in momentum

Question Number : 64 Question Id : 5105296076 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A Jet engine works on the principle of _____

Options :

1. ✖ conservation of energy

2. ✖ conservation of mass

3. ✔ conservation of linear momentum

4. ✖ conservation of angular momentum

Question Number : 65 Question Id : 5105296077 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

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Options :

1. ✖ 1 cm

2. ✖ $\sqrt{2}$cm

3. ✖ 2 cm

4. ✔ $2\sqrt{2}$ cm

Question Number : 66 Question Id : 5105296078 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The walls of Hall built for music concerns should _____

Options :

1. ✖ amplify sound

2. ✖ reflect sound

3. ✖ transmit sound

4. ✔ absorb sound

Question Number : 67 Question Id : 5105296079 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When a surrounding body and listener approach each other the pitch appears to rise and when they move away from each other pitch appears to decrease. This is known as _____

Options :

1. ✔ Doppler's principle

2. ✖ Newton's formula

3. ✖ Interference

4. ✖ Sabine's formula

Question Number : 68 Question Id : 5105296080 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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An engine driver moving towards a wall with a velocity of 50 m/sec., emits a note of 1.2 KHz. Speed of sound in air is 350 m/sec. The frequency of the note after reflection from the wall as heard by the engine driver is _____

Options :

1. ✖ 1.2 KHz

2. ✔ 1.6 KHz

3. ✖ 0.24 KHz

4. ✖ 2.4 KHz

Question Number : 69 Question Id : 5105296081 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

What is the maximum number of syllables a person can speak in one second?

Options :

1. ✖ 1

2. ✖ 3

3. ✖ 4

4. ✔ 5

Question Number : 70 Question Id : 5105296082 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The speed of sound in air at NTP is 300m/s, if the air pressure becomes four times then the speed of sound will be _____

Options :

1. ✖ 150 m/s

2. ✖ 300 m/s

3. ✔ 600 m/s

4. ✖ 1200 m/s

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Question Number : 71 Question Id : 5105296083 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For the efficiency of the Carnot cycle to be maximum, _____

Options :

1. ✔ the temperature of the source should be infinity

2. ✖ the temperature of the sink should be infinity

3. ✖ the temperature of the source should be zero

4. ✖ both should be infinity

Question Number : 72 Question Id : 5105296084 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Specific heat of a gas at constant volume C_v and at constant pressure C_p are related as

_____

Options :

1. ✖ $C_p/C_v = 1\text{-}R/J$

2. ✔ $C_p - C_v = R/J$

3. ✖ $C_p - C_v = J/R$

4. ✖ $C_p + C_v = R/J$

Question Number : 73 Question Id : 5105296085 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the pressure remains constant the volume of the gas will _____

Options :

1. ✔ increase with the increase in temperature

2. ✖ decrease with the increase in temperature

3. ✖ not change with the temperature

4. ✖ become zero

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Question Number : 74 Question Id : 5105296086 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A super conducting material when placed in a magnetic field will _____

Options :

1. ✖ attract the magnetic field towards its centre

2. ✖ attract the magnetic field but transfer it into a concentrated zone

3. ✔ repel all the magnetic lines of force passing through it

4. ✖ not influence the magnetic field

Question Number : 75 Question Id : 5105296087 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For long distance communication _____

Options :

1. ✖ grand index fibers are more suitable

2. ✔ single mode step index fibers are more suitable

3. ✖ step index fibers are more suitable

4. ✖ silica fibers are more suitable

Display Number Panel: Yes
Group All Questions: No

Question Number : 76 Question Id : 5105296088 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The set of quantum number for the 19^{th} electron in chromium is _____

Options :

1. ✔ n=4, l=0, m = 0, S=+1/2 or -1/2

2. ✖ n=3, l=2, m = 1, S=+1/2 or -1/2

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3. ✖ n=3, l=2, m = -1, S=+1/2 or -1/2

4. ✖ n=4, l=1, m = 0, S=+1/2 or -1/2

Question Number : 77 Question Id : 5105296089 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In which of the following compounds, is coordinate covalent bond present?

Options :

1. ✖ PH_3

2. ✖ H_2O

3. ✔ NH_4OH

4. ✖ HBr

Question Number : 78 Question Id : 5105296090 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Variable valency is shown by _____

Options :

1. ✖ N and O

2. ✔ P and S

3. ✖ F and Cl

4. ✖ N and S

Question Number : 79 Question Id : 5105296091 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In the following balanced equation

$$H_2SO_4 + x\,HI \longrightarrow H_2S + YI_2 + ZH_2O$$

The values of x, Y, Z would be _____

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Options :

1. ✖ x=4, Y=8, Z=5

2. ✖ x=6, Y=3, Z=4

3. ✔ x=8, Y=4, Z=4

4. ✖ x=3, Y=5, Z=4

Question Number : 80 Question Id : 5105296092 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

50cc of decinormal NaOH solution will be completely neutralised by 'x' ml of decimolar H_2SO_4 solution. The value of 'x' is _____

Options :

1. ✖ 10

2. ✔ 25

3. ✖ 50

4. ✖ 1

Question Number : 81 Question Id : 5105296093 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Arrange the following in the decreasing order of acidity:

I) H_2SO_3 II) H_3PO_4 III) $HClO_3$

Options :

1. ✖ I > II > III

2. ✖ II > III > I

3. ✔ III > II > I

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4. ✖ I > III > II

Question Number : 82 Question Id : 5105296094 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which anion is the weakest conjugate base?

Options :

1. ✖ $C_2H_5\text{-}O^{\ominus}$

2. ✖ $F^{\ominus}$

3. ✖ $CH_3COO^{\ominus}$

4. ✔ $NO_3^{\ominus}$

Question Number : 83 Question Id : 5105296095 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In the preparation of wrought iron from cast iron, the furnace employed is _____

Options :

1. ✖ Electrical

2. ✖ Open hearth

3. ✔ Reverberatory

4. ✖ Blast

Question Number : 84 Question Id : 5105296096 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Number of coulombs of current required to convert completely one mole of $MnO_4^{\ominus}$ ions in acid medium to one mole of Mn^{+2} ions electrically _____

Options :

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1. ✖ 96500

2. ✖ 96500 x 2

3. ✖ 96500 x 6

4. ✔ 5 x 96500

Question Number : 85 Question Id : 5105296097 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following elements has the highest value of the electrochemical equivalent?

Options :

1. ✖ Mg

2. ✖ Ca

3. ✔ K

4. ✖ Na

Question Number : 86 Question Id : 5105296098 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The standard reduction potential for Zn^{+2}/Zn and Cu^{+2}/Cu electrodes are -0.76 V and +0.34 V respectively. For the cell reaction $Zn + Cu^{+2} \rightarrow Zn^{+2} + Cu$ the standard e.m.f is

Options :

1. ✔ +1.10 V

2. ✖ -0.42 V

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3. ✖ +0.42 V

4. ✖ -1.10 V

Question Number : 87 Question Id : 5105296099 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The type of protection against corrosion applied to marine piers and water box coolers is _____

Options :

1. ✔ Impressed current cathodic protection

2. ✖ Metal rusting

3. ✖ Tinning

4. ✖ Metal painting

Question Number : 88 Question Id : 5105296100 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A metal is dipped separately in different pH solutions of 1, 2, 3 and 4. In which pH solution is the metal easily corroded?

Options :

1. ✔ 1

2. ✖ 2

3. ✖ 3

4. ✖ 4

Question Number : 89 Question Id : 5105296101 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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A raw water sample has 300 ppm calcium ions and its $CaCO_3$ equivalent in ppm

is ____

Options :

1. ✖ 625

2. ✔ 750

3. ✖ 1500

4. ✖ 25

Question Number : 90 Question Id : 5105296102 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A Process which removes ionic, non ionic, colloidal and organic matter from water

is _____

Options :

1. ✖ Ion exchange process

2. ✖ Permutit process

3. ✖ Zeolite process

4. ✔ Reverse osmosis

Question Number : 91 Question Id : 5105296103 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The exhausted anion exchange column in the demineralization process is regenerated

by passing a solution of _____

Options :

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1. ✖ dil H_2SO_4

2. ✖ dil HCl

3. ✔ dil NaOH

4. ✖ dil NH_4OH

Question Number : 92 Question Id : 5105296104 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which one of the following is not an example of addition polymer?

Options :

1. ✖ Polythene

2. ✔ Terylene

3. ✖ Neoprene

4. ✖ Polystyrene

Question Number : 93 Question Id : 5105296105 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following is an example of fibre polymer?

Options :

1. ✖ Rubber

2. ✖ PVC

3. ✖ Bakelite

4. ✔ Nylon-66

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Question Number : 94 Question Id : 5105296106 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following can enhance the Physical properties of rubber?

Options :

1. ✖ ZnO

2. ✖ Zn stearate

3. ✔ Sulphur

4. ✖ SiO_2

Question Number : 95 Question Id : 5105296107 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The basic component of the smog may be _____

Options :

1. ✖ O_3

2. ✔ O_3 + PAN

3. ✖ PAN + SO_2

4. ✖ O_3 + PAN + SO_3

Question Number : 96 Question Id : 5105296108 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In Antarctica, Ozone depletion is due to the formation of the following Compound(s) _____

Options :

1. ✖ Chlorine nitrate

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2. ✖ PAN

3. ✔ Acrolein

4. ✖ SO_2 and SO_3

Question Number : 97 Question Id : 5105296109 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The pollutant responsible for smog formation and acid rain is _____

Options :

1. ✔ SO_2

2. ✖ CH_4

3. ✖ He

4. ✖ SO_2Cl_2

Question Number : 98 Question Id : 5105296110 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The normality of 26% (Wt/Vol) solution of ammonia (d=0.55) is approximately ____

Options :

1. ✖ 1.5

2. ✔ 15.3

3. ✖ 0.4

4. ✖ 4

Question Number : 99 Question Id : 5105296111 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Wolframite impurity in Cassiterite is removed by _____

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Options :

1. ✖ Liquation

2. ✖ Froth flotation

3. ✔ Electromagnetic separation

4. ✖ Hand picking

Question Number : 100 Question Id : 5105296112 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The highest ranking coal is _____

Options :

1. ✔ Anthracite

2. ✖ Lignite

3. ✖ Bituminous

4. ✖ Peat

Display Number Panel: Yes
Group All Questions: No

Question Number : 101 Question Id : 5105296113 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If two voltage sources V_1 and V_2 are connected in parallel and series respectively, find the correct relation.

Options :

1. ✔ $V_1=V_2$; $V_1 - V_2$

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2. ✖ $V_1=V_2$; $V_1 \pm V_2$

3. ✖ $V_1>V_2$; $V_1 + V_2$

4. ✖ $V_1<V_2$; $V1 - V_2$

Question Number : 102 Question Id : 5105296114 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Kirchoff's current law is the conservation of _____

Options :

1. ✖ Energy

2. ✔ Charge

3. ✖ Torque

4. ✖ Power

Question Number : 103 Question Id : 5105296115 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The capacitance of a parallel plate capacitor is 2 μF. When a glass plate is inserted between its two plates, its potential reduces to 1/10 of the original value. The value of dielectric constant is ___

Options :

1. ✖ 4

2. ✖ 8

3. ✔ 10

4. ✖ 20

Question Number : 104 Question Id : 5105296116 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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A tap supplies water at 32°c. A man takes 1 lire of water per minute at 47°c from the geyser. The power of the geyser is _____

Options :

1. ✔ 1050 W

2. ✖ 8000 W

3. ✖ 1575 W

4. ✖ 525 W

Question Number : 105 Question Id : 5105296117 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following theorems is used in communication systems?

Options :

1. ✖ Norton's

2. ✖ Thevenin's

3. ✖ Reciprocity

4. ✔ Maximum power transfer theorem

Question Number : 106 Question Id : 5105296118 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a network, the open circuit is made across the load terminals, the voltage measured is 10 Volts and short circuit is made across the same load terminals, the current measurement is 5 A. Across the same load terminals if the load resistance connected is 3Ω, then the current flow is ___

Options :

1. ✖ 1A

2. ✖ 3A

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3. ✔ 2A

4. ✖ 5A

Question Number : 107 Question Id : 5105296119 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a level compound generator, full load voltage is found to be _____ the terminal voltage.

Options :

1. ✖ Lesser than

2. ✖ Higher than

3. ✔ Equal to

4. ✖ Much lesser than

Question Number : 108 Question Id : 5105296120 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

AT/m is the unit of _____

Options :

1. ✖ m.m.f

2. ✖ Reluctance

3. ✖ Magnetic flux density

4. ✔ Magnetizing force

Question Number : 109 Question Id : 5105296121 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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A portion of a conducting wire is bent in the form of a semicircle of radius 'x' carries a current of I Amps. At the centre of the semicircle, the magnetic field will be _____

Options :

1. ✖ Zero

2. ✔ $\mu_0 I / 4x$

3. ✖ $\mu_0 I / 8x$

4. ✖ $\mu_0 I / 2x$

Question Number : 110 Question Id : 5105296122 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A wave wound DC generator with 4 poles, 1000 conductors having flux/pole of 0.06 Wb is developing a voltage of 200 V. Then the speed of the armature will be _____

Options :

1. ✖ 200 RPM

2. ✔ 100 RPM

3. ✖ 400 RPM

4. ✖ 600 RPM

Question Number : 111 Question Id : 5105296123 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In speed control of DC motors, which method will give above rated speeds?

Options :

1. ✖ Armature control only

2. ✔ Field Control only

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3. ✖ Both armature and field control

4. ✖ e.m.f injection methods

Question Number : 112 Question Id : 5105296124 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following methods is the most economical for finding no load losses of a DC shunt motor?

Options :

1. ✖ Hopkinson's test

2. ✔ Swinburne's test

3. ✖ Retardation test

4. ✖ Brake test

Question Number : 113 Question Id : 5105296125 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The ampere hour efficiency of a lead acid battery is about _____

Options :

1. ✖ 25%

2. ✔ 90%

3. ✖ 60%

4. ✖ 100%

Question Number : 114 Question Id : 5105296126 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the current in the armature of a DC series motor before saturation is reduced by 50%, the torque of the motor will be _____

Options :

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1. ✖ 50%

2. ✔ 25%

3. ✖ 150%

4. ✖ 200%

Question Number : 115 Question Id : 5105296127 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following materials exhibit negative temperature coefficient of resistance as the temperature increases?

Options :

1. ✖ Copper

2. ✖ Silver

3. ✔ Silicon

4. ✖ ACSR conductor

Question Number : 116 Question Id : 5105296128 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The direction of rotation of a DC motor can be determined by _____

Options :

1. ✖ Fleming's right hand rule

2. ✔ Fleming's left hand rule

3. ✖ Lenz's law

4. ✖ Ampere's law

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Question Number : 117 Question Id : 5105296129 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The purpose of DC motor starter is to _____

Options :

1. ✖ Provide starting torque

2. ✔ limit initial inrush current

3. ✖ Provide high speed

4. ✖ regulate supply voltage

Question Number : 118 Question Id : 5105296130 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The efficiency of a DC machine is maximum when variable losses are equal to

_____

Options :

1. ✔ Constant losses

2. ✖ Stray Losses

3. ✖ Friction losses

4. ✖ eddy current losses

Question Number : 119 Question Id : 5105296131 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In order to increase the range of a voltmeter _____ with the volt meter.

Options :

1. ✖ A low resistance is connected in series

2. ✖ A low resistance is connected in parallel

3. ✔ A high resistance is connected in series

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4. ✖ A high resistance is connected in parallel

Question Number : 120 Question Id : 5105296132 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following materials is used as dielectric material?

Options :

1. ✖ Plastic

2. ✖ Tungsten

3. ✔ Ceramics

4. ✖ Germanium

Question Number : 121 Question Id : 5105296133 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A Permanent magnet should have_____

Options :

1. ✔ High retentivity

2. ✖ Low retentivity

3. ✖ Zero retentivity

4. ✖ Low permeability

Question Number : 122 Question Id : 5105296134 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When the electrical supply is ON, then which of the following instruments should not be used?

Options :

1. ✖ Wattmeter and power factor meter

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2. ✖ Frequency meter and energy meter

3. ✖ Phase sequence meter and tong tester

4. ✔ Ohm meter and megger

Question Number : 123 Question Id : 5105296135 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A current of (120- j 50) A flows through a circuit when the applied voltage is (8 + j 12) V.

What is the magnitude of circuit impedance?

Options :

1. ✔ 0.0635 Ω

2. ✖ 1.325 Ω

3. ✖ 1.52 Ω

4. ✖ 0.0256 Ω

Question Number : 124 Question Id : 5105296136 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

DC Crompton's potentiometer is used to calibrate

Options :

1. ✖ Voltmeter only

2. ✖ Ammeter only

3. ✖ Energy meter only

4. ✔ Both voltmeter and Ammeter

Question Number : 125 Question Id : 5105296137 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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LVDT is a transducer which converts

Options :

1. ✔ Linear displacement into proportional electrical signal

2. ✖ Low voltage signal into high frequency signal

3. ✖ High frequency signal into low frequency signal

4. ✖ Acceleration into pressure

Question Number : 126 Question Id : 5105296138 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Gravity control technique in a measuring instrument can be employed for _____

Options :

1. ✖ Horizontally mounted measuring instruments only

2. ✔ Vertically mounted measuring instruments only

3. ✖ Both horizontally and vertically mounted measuring instruments only

4. ✖ Independent of mounting of measuring instruments

Question Number : 127 Question Id : 5105296139 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Two wattmeter's are used to measure power input to a 3-phase balanced load. The reading in one wattmeter is twice that of the second. The Power factor of the load is _____

Options :

1. ✖ Zero lag

2. ✔ 0.866

3. ✖ 0.5

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4. ✖ Unity

Question Number : 128 Question Id : 5105296140 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A series RLC circuit draws current at leading power factor at _____

Options :

1. ✖ Resonant frequency

2. ✔ Below resonant frequency

3. ✖ Above resonant frequency

4. ✖ all frequencies

Question Number : 129 Question Id : 5105296141 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If a transformer primary is energized from a square wave voltage source, then its output voltage will be _____

Options :

1. ✖ Zero

2. ✖ A sine wave

3. ✖ A triangular wave

4. ✔ A pulse wave

Question Number : 130 Question Id : 5105296142 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In an AC circuit, the current and voltage are out of phase by 90^0. The ammeter reads 2A and voltmeter reads 1000V. The power consumed is _____

Options :

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1. ✔ Zero

2. ✖ 2000W

3. ✖ 1000W

4. ✖ 180W

Question Number : 131 Question Id : 5105296143 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In which transformer connection, tertiary winding is used?

Options :

1. ✖ Y- Δ

2. ✖ Δ - Δ

3. ✔ Δ - Y

4. ✖ Y - Y

Question Number : 132 Question Id : 5105296144 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When a three phase connection can be used in a transformer to introduce a phase difference of 30° between its output and corresponding input voltage?

Options :

1. ✖ Y - Y

2. ✔ Y- Δ

3. ✖ Δ - Δ

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Δ - zig zag

4. ✖

Question Number : 133 Question Id : 5105296145 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

An auto transformer is more economical in saving of material if _____

Options :

1. ✔ Turns ratio (N2/N1) is nearly unity

2. ✖ Rating of transformer is low

3. ✖ Turns ratio (N2/N1) is 0.5

4. ✖ Rating of transformer is high

Question Number : 134 Question Id : 5105296146 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When a parallel ac circuit is in resonance, it _____

Options :

1. ✖ Draws maximum current

2. ✖ Offers minimum impedance

3. ✔ Is called as rejector circuit

4. ✖ Has no branch currents

Question Number : 135 Question Id : 5105296147 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The phase difference between voltage and current wave through a circuit elements is given as 30^0, the essential condition is that _____

Options :

1. ✖ Both the waves have zero at the same time

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2. ✖ Both the waves must have identical peak values

3. ✔ Both the waves must have the same frequency

4. ✖ It should be pure resistive circuit

Question Number : 136 Question Id : 5105296148 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In transformers laminated core is used to reduce _____

Options :

1. ✖ Hysteresis loss

2. ✔ Eddy current loss

3. ✖ Copper Loss

4. ✖ Iron loss

Question Number : 137 Question Id : 5105296149 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A 5KVA, 200/100V, single phase transformer delivers 50A at rated voltage, the input current will be _____

Options :

1. ✔ 25A

2. ✖ 50A

3. ✖ More than 50A

4. ✖ Less than 25A

Question Number : 138 Question Id : 5105296150 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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A single phase transformer has a turn ratio of 4:1. If the secondary winding has a resistance of 1 Ω, the secondary resistance as referred to the primary will be _____

Options :

1. ✔ 16 Ω

2. ✖ 4 Ω

3. ✖ 0.0625 Ω

4. ✖ 0.25 Ω

Question Number : 139 Question Id : 5105296151 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The voltage regulation of a transformer would be negative generally at the following power factor _____

Options :

1. ✖ Unity

2. ✖ 0.8 lagging

3. ✔ 0.2 leading

4. ✖ Zero lagging

Question Number : 140 Question Id : 5105296152 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For a 3-ϕ induction motor, operating at slip 's', the ratio of gross power output to air gap power is equal to _____

Options :

1. ✖ $(1-s)^2$

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2. ✔ $(1-s)$

3. ✖ $\sqrt{1-s}$

4. ✖ $(1-\sqrt{s})$

Question Number : 141 Question Id : 5105296153 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A 3-phase, 6-pole induction motor connected to a 50Hz supply runs at 975rpm on full-load.

Its full load slip is _____

Options :

1. ✖ 25 %

2. ✖ 1.5 %

3. ✔ 2.5 %

4. ✖ 2.0 %

Question Number : 142 Question Id : 5105296154 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The ratio of starting torque with star-delta starter to the starting torque with direct-on-line starting is _____

Options :

1. ✖ $1/(\sqrt{3})$

2. ✖ $\sqrt{3}$

3. ✔ $1/3$

4. ✖ 3

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Question Number : 143 Question Id : 5105296155 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A field excitation of 20A in a certain alternator results in an armature of 400 A in short circuit and a terminal voltage of 2000 V on open circuit. The magnitude of the internal voltage drop within the machine at a current of 200 A is _____

Options :

1. ✖ 1 V

2. ✖ 10 V

3. ✖ 100 V

4. ✔ 1000 V

Question Number : 144 Question Id : 5105296156 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a capacitor start motor, the capacitor is connected _____

Options :

1. ✔ In series with auxiliary winding only

2. ✖ In series with main winding only

3. ✖ In parallel with auxiliary winding only

4. ✖ Anywhere in the motor

Question Number : 145 Question Id : 5105296157 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a single phase induction motor running at a slip of 5% with reference to forward field, the slip with reference to backward field is _____

Options :

1. ✖ 0

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2. ✖ 0.95

3. ✔ 1.95

4. ✖ 2.0

Question Number : 146 Question Id : 5105296158 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When a synchronous motor is run as a synchronous capacitor, it operates _____

Options :

1. ✔ With leading power factor without any load

2. ✖ With leading power factor supplying loads

3. ✖ With lagging power factor without any load

4. ✖ With lagging power factor supplying loads

Question Number : 147 Question Id : 5105296159 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The charging current in a transmission line increases due to corona effect because corona increases _____

Options :

1. ✖ Line current

2. ✖ Effective line voltage

3. ✖ Power loss in lines

4. ✔ effective conductor diameter

Question Number : 148 Question Id : 5105296160 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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Hunting in synchronous motors occur due to _____

Options :

1. ✖ Changes in excitation

2. ✖ Increase in supply to motors

3. ✖ Decrease in supply to motor

4. ✔ sudden load variations

Question Number : 149 Question Id : 5105296161 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The cooling medium used in large sized synchronous machine is usually _____

Options :

1. ✔ Hydrogen

2. ✖ Air

3. ✖ Water

4. ✖ Mineral oil

Question Number : 150 Question Id : 5105296162 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The graph for "V" curves for a synchronous motor is drawn between _____

Options :

1. ✔ Field current and armature current

2. ✖ Power factor and field current

3. ✖ Armature current and power factor

4. ✖ Terminal voltage and power factor

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Question Number : 151 Question Id : 5105296163 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

An over excited synchronous motor operates at _____

Options :

1. ✖ Unity P.F

2. ✔ Leading P.F

3. ✖ Lagging P.F

4. ✖ Zero P.F (lagging)

Question Number : 152 Question Id : 5105296164 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Synchronous reactance is _____

Options :

1. ✔ Sum of both leakage reactance and armature reaction reactance

2. ✖ Armature reaction reactance

3. ✖ Difference of armature reaction reactance and leakage reactance

4. ✖ Leakage reactance

Question Number : 153 Question Id : 5105296165 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Water hammer is developed in _____

Options :

1. ✔ Pen stack

2. ✖ Turbine

3. ✖ Alternator

4. ✖ Surge tank

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Question Number : 154 Question Id : 5105296166 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The maximum demand of a consumer is 2KW and the daily energy consumption is 24units.

The load factor is _____

Options :

1. ✖ 10%

2. ✖ 40%

3. ✔ 50%

4. ✖ 30%

Question Number : 155 Question Id : 5105296167 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Boron is used in nuclear reactor as _____

Options :

1. ✖ Fuel

2. ✖ Heat exchanger

3. ✔ Control rods

4. ✖ Moderator

Question Number : 156 Question Id : 5105296168 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For high discharges which of the following turbines is used in hydro power plants?

Options :

1. ✖ Pelton turbine

2. ✖ Francis turbine

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3. ✔ Kaplan turbine

4. ✖ Deriaz turbine

Question Number : 157 Question Id : 5105296169 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A plant has an average load of 20 MW when the load factor is 50%. Its diversity factor is 20%. Sum of maximum demands of all load amounts to _____

Options :

1. ✖ 12 MW

2. ✔ 8 MW

3. ✖ 6 MW

4. ✖ 4 MW

Question Number : 158 Question Id : 5105296170 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Generally Buchholz relay is used in power system for protection against _____

Options :

1. ✖ Faults in generators

2. ✖ Faults in transmission lines

3. ✖ Earth faults primarily in alternators

4. ✔ Internal faults in transformer

Question Number : 159 Question Id : 5105296171 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Ground wires are used in transmission lines to _____

Options :

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1. ✖ Suppress arcing earth

2. ✔ Shield the lines against lightning strokes

3. ✖ Provide return paths for zero sequence current

4. ✖ Provide mechanical rigidity to the lines and towers

Question Number : 160 Question Id : 5105296172 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Lightening arrestors are normally made of _____

Options :

1. ✖ Silica gel

2. ✖ Calcium hydroxide

3. ✔ Thyrite

4. ✖ Tungsten

Question Number : 161 Question Id : 5105296173 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A relay used on short transmission lines is _____

Options :

1. ✖ mho relay

2. ✔ reactance relay

3. ✖ impedance relay

4. ✖ admittance relay

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Question Number : 162 Question Id : 5105296174 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The normal frequency r.m.s voltage that appears across the circuit breaker pole after final arc extinction has occurred is called the _____

Options :

1. ✗ Supply voltage

2. ✗ Restriking voltage

3. ✓ Recovery voltage

4. ✗ Breaking voltage

Question Number : 163 Question Id : 5105296175 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Ring main distribution system is preferred to radial distribution system, because _____

Options :

1. ✓ Voltage drop in the feeder is less

2. ✗ Power factor is high

3. ✗ It is less expensive

4. ✗ Power factor is low

Question Number : 164 Question Id : 5105296176 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Ferranti effect in long lines causes increase of _____

Options :

1. ✗ Sending end voltage

2. ✓ Receiving end voltage

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3. ✖ load power factor

4. ✖ failure of transformer

Question Number : 165 Question Id : 5105296177 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The GMR of a conductor of radius r is _____

Options :

1. ✖ r

2. ✖ 1/r

3. ✔ 0.7788r

4. ✖ 1/0.7788r

Question Number : 166 Question Id : 5105296178 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The purpose of guard ring is _____

Options :

1. ✖ To equalize various capacitances

2. ✔ To equalize voltage drops across insulator units

3. ✖ To equalize the various inductances

4. ✖ To guard against heavy voltages

Question Number : 167 Question Id : 5105296179 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Transmission lines are transposed mainly to _____

Options :

1. ✖ Reduce copper loss

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2. ✖ Reduce skin effect

3. ✔ Prevent interference with neighboring telephone lines

4. ✖ Prevent short circuit between any two lines

Question Number : 168 Question Id : 5105296180 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

While designing distributor for following parameters is important to consider _____

Options :

1. ✔ Voltage drop

2. ✖ Temperature rise

3. ✖ Corona effect

4. ✖ Insulation level

Question Number : 169 Question Id : 5105296181 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Sheaths are used in cables to _____

Options :

1. ✖ Provide proper insulation

2. ✖ Provide mechanical strength

3. ✔ Prevent increases of moisture

4. ✖ Allow the moisture contents into the cables

Question Number : 170 Question Id : 5105296182 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A 66kV system has string insulator having five discs and the earth to disc capacitance ratio of 0.10, then the string efficiency will be around _____

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Options :

1. ✖ 89%

2. ✖ 75%

3. ✖ 67%

4. ✔ 55%

Question Number : 171 Question Id : 5105296183 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Auto reclosing is used in case of _____

Options :

1. ✖ Lightning arrester

2. ✔ Air blast C.B

3. ✖ Bulk oil C.B

4. ✖ Minimum oil C.B

Question Number : 172 Question Id : 5105296184 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

HVDC Transmission is preferred to EHVAC because _____

Options :

1. ✖ HVDC terminal equipment is inexpensive

2. ✖ VAR compensation is not required in HVDC system

3. ✔ System stability can be improved

4. ✖ Harmonics-problem is a voided

Question Number : 173 Question Id : 5105296185 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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In a sub-urban service compared to urban service _____

Options :

1. ✖ The coasting period is smaller but free running period is longer

2. ✔ The coasting period is longer and free running period is also absent

3. ✖ Relatively high average speed

4. ✖ Only free running period is very long

Question Number : 174 Question Id : 5105296186 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In traction systems, schedule speed is defined as _____

Options :

1. ✖ Distance/(time for run)

2. ✖ Distance/(time to stop)

3. ✔ Distance/(time to run + time to stop)

4. ✖ Distance/(time during which the speed is constant)

Question Number : 175 Question Id : 5105296187 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

On the speed time curve in traction, the period of time where tractive effort is equal to resistance to the train movement is called _____

Options :

1. ✖ Notching up period

2. ✔ Pre running period

3. ✖ Coasting period

4. ✖ Retardation period

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Question Number : 176 Question Id : 5105296188 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Quadrilateral speed time curve is used for _____

Options :

1. ✖ Sub urban service only

2. ✖ Urban service only

3. ✖ Main line service only

4. ✔ Both urban and sub urban services

Question Number : 177 Question Id : 5105296189 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Longer coasting period of a train results in _____

Options :

1. ✖ Higher schedule speed

2. ✔ Lower specific energy consumption

3. ✖ Higher retardation

4. ✖ Higher acceleration

Question Number : 178 Question Id : 5105296190 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The drive motor for locomotive would be _____

Options :

1. ✖ Synchronous motor

2. ✔ DC series motor

3. ✖ Universal motor

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4. ✖ Schrage motor

Question Number : 179 Question Id : 5105296191 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Tumbler switches are made of _____

Options :

1. ✖ Iron

2. ✖ Rubber

3. ✖ Plastic

4. ✔ Bakelite

Question Number : 180 Question Id : 5105296192 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A Britannia joint is used in _____

Options :

1. ✔ Bare overhead wires

2. ✖ Underground cables

3. ✖ Conduit wiring

4. ✖ Power wiring

Question Number : 181 Question Id : 5105296193 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The maximum permissible value of earth resistance for satisfactory operation of large power station is _____

Options :

1. ✖ 2 Ω

2. ✖ 1 Ω

3. ✔ 0.5 Ω

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4. ✖ 5 Ω

Question Number : 182 Question Id : 5105296194 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The only wiring which has to be planned well before starting of a house construction work and executed along with the construction is _____

Options :

1. ✖ Cleat wiring

2. ✖ Conduit surface wiring

3. ✖ Batten wiring

4. ✔ Conduit concealed wiring

Question Number : 183 Question Id : 5105296195 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

According to IE code, the color code for the neutral is _____

Options :

1. ✖ Red

2. ✖ Blue

3. ✔ Black

4. ✖ Green

Question Number : 184 Question Id : 5105296196 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A semiconductor device field effect transistor (FET) _____

Options :

1. ✔ Has a very high input impedance

2. ✖ Depends on minority carrier flow

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3. ✖ Uses a forward biased junction

4. ✖ Uses a high concentration emitter junction

Question Number : 185 Question Id : 5105296197 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Peak inverse voltage (PIV) of bridge rectifier is _____

Options :

1. ✔ V_m

2. ✖ $2V_m$

3. ✖ $0.5\ V_m$

4. ✖ $4\ V_m$

Question Number : 186 Question Id : 5105296198 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In Wien bridge oscillator the phase introduced by feedback network _____

Options :

1. ✖ 0^0

2. ✔ 180^0

3. ✖ 60^0

4. ✖ 270^0

Question Number : 187 Question Id : 5105296199 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Decimal equivalent of $(0.0100)_2$ is _____

Options :

1. ✖ 0.75

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2. ✖ 0.375

3. ✖ 0.825

4. ✔ 0.250

Question Number : 188 Question Id : 5105296200 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The output of a 2-input gate is 0 if and only if its inputs are equal, it is true for _____

Options :

1. ✖ AND

2. ✔ EX-OR

3. ✖ OR

4. ✖ NOR

Question Number : 189 Question Id : 5105296201 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When a Thyristor is reverse biased , the number of blocked P-N junctions is _____

Options :

1. ✖ 1

2. ✔ 2

3. ✖ 3

4. ✖ 4

Question Number : 190 Question Id : 5105296202 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For normal Thyristors, turn-on time is _____

Options :

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1. ✖ Less than turn-off time (t_q)

2. ✔ More than t_q

3. ✖ Equal to t_q

4. ✖ About half of the t_q

Question Number : 191 Question Id : 5105296203 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A single phase fully controlled bridge converter supplies an inductive load and the supply voltage is 230 V and if the firing angle is $\Pi/6$ radians, what is the average output voltage nearly?

Options :

1. ✔ 180 V

2. ✖ 220 V

3. ✖ 150 V

4. ✖ 130 V

Question Number : 192 Question Id : 5105296204 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A freewheeling diode is placed across the inductive load will provide _____

Options :

1. ✖ Quick turn-on

2. ✖ Slow turn-off

3. ✖ Reduced utilization factor

4. ✔ Improved power factor

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Question Number : 193 Question Id : 5105296205 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The 8051 Micro controller has a/an _____ bit CPU.

Options :

1. ✖ 16

2. ✔ 8

3. ✖ 32

4. ✖ 4

Question Number : 194 Question Id : 5105296206 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Two identical SCRs are connected back to back in series with a R – L (continuous mode) ($\alpha < \phi$) load. If each SCR is fired at 90^0, a PMMC voltmeter across the load would read _____ (where $\alpha \rightarrow$ firing angle and $\phi \rightarrow$ load angle)

Options :

1. ✖ Peak voltage

2. ✖ (Peak voltage)/π

3. ✔ Zero voltage

4. ✖ Half of peak voltage

Question Number : 195 Question Id : 5105296207 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Solid angle subtended by a sphere at its Centre is _____ steradians.

Options :

1. ✖ 2π

2. ✔ 4π

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3. ✖ π

4. ✖ Zero

Question Number : 196 Question Id : 5105296208 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The colour of light depends on _____

Options :

1. ✔ Wave length

2. ✖ Speed of light

3. ✖ Time period

4. ✖ Phase constant

Question Number : 197 Question Id : 5105296209 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Determine the distance for a 25 C.P lamp from a normally placed screen in order that the illumination shall be 5 lux?

Options :

1. ✔ 2.24 m

2. ✖ 5 m

3. ✖ 1m

4. ✖ 3 m

Question Number : 198 Question Id : 5105296210 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If a table fan running smoothly starts giving up smoke, the reason is _____

Options :

1. ✔ Short circuited winding

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2. ✖ Failure of the centrifugal switch to open the starting winding

3. ✖ Bearing failure

4. ✖ Overload

Question Number : 199 Question Id : 5105296211 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Function of fusible safety plug in a geyser is _____

Options :

1. ✔ It protect the geyser against blasting due to excessive steam pressure

2. ✖ It protects the heating element against burning

3. ✖ It releases the extra water out of the geyser

4. ✖ It protects the thermostat of the geyser

Question Number : 200 Question Id : 5105296212 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When a fluorescent lamp shows a dense blackening at each end it could be possible mean

that the _____

Options :

1. ✖ Gas filled in the lamp was wrong

2. ✖ Lamp was started infrequently

3. ✔ Starter was working improperly

4. ✖ Lamp was new

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