

Question Paper Preview

Notations :

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

Question Paper Name :	Electrical and Electronics Engineering 31st Aug 2020 Shift 1 SET 2
Subject Name :	Electrical and Electronics Engineering
Creation Date :	2020-08-31 17:38:57
Duration :	180
Total Marks :	200
Display Marks:	No
Share Answer Key With Delivery Engine :	Yes
Actual Answer Key :	Yes
Calculator :	None
Magnifying Glass Required? :	No
Ruler Required? :	No
Eraser Required? :	No
Scratch Pad Required? :	No
Rough Sketch/Notepad Required? :	No
Protractor Required? :	No
Show Watermark on Console? :	Yes
Highlighter :	No
Auto Save on Console? :	Yes

Electrical and Electronics Engineering

Group Number :	1
Group Id :	76439060
Group Maximum Duration :	0
Group Minimum Duration :	180
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	200
Is this Group for Examiner? :	No

Mathematics

Section Id :	764390231
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	50
Number of Questions to be attempted :	50
Section Marks :	50
Display Number Panel :	Yes
Group All Questions :	Yes
Mark As Answered Required? :	Yes
Sub-Section Number :	1
Sub-Section Id :	764390261
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 76439011825 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

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

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

Options :

76439047201. $\begin{bmatrix} 2 & 4 & 3 \\ -4 & 6 & 5 \\ -3 & -5 & 4 \end{bmatrix}$

76439047202. $\begin{bmatrix} 0 & 0 & 3 \\ 4 & 0 & 3 \\ -3 & -3 & 0 \end{bmatrix}$

76439047203. $\begin{bmatrix} 2 & 3 & 1 \\ -3 & 6 & 5 \\ -1 & -5 & 4 \end{bmatrix}$

76439047204. $\begin{bmatrix} 1 & 1 & 1 \\ -1 & 0 & 1 \\ -1 & -1 & 0 \end{bmatrix}$

Question Number : 2 Question Id : 76439011826 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

symmetric matrix having rank 2 is

Options :

76439047205. ✖ E

76439047206. ✔ F

76439047207. ✔ A

76439047208. ✖ C

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

Question Number : 3 Question Id : 76439011827 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

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

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

Options :

76439047209. ✖ A

76439047210. ✖ D

76439047211. ✔ B

76439047212. ✖ C

Question Number : 4 Question Id : 76439011828 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047213. ✔ 0

76439047214. ✖ 1

76439047215. ✖ 3

76439047216. ✖ 4

Question Number : 5 Question Id : 76439011829 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047217. ✖ 0

76439047218. ✖ 1

76439047219. ✔ 13

76439047220. ✖ 15

Question Number : 6 Question Id : 76439011830 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047221. ✔ $-(A+1)$

76439047222. ✖ $(A+10)$

76439047223. ✖ $(A+k)$

76439047224. ✖ $(A+10k)$

Question Number : 7 Question Id : 76439011831 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047225. ✖ 0

76439047226. ✖ 2

76439047227. ✖ 4

76439047228. ✔ 5

Question Number : 8 Question Id : 76439011832 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

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

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

Options :

76439047229. ✓ A is true, R is true and R is correct explanation of A

76439047230. ✗ A is true, R is true and R is not correct explanation of A

76439047231. ✗ A is true, R is false

76439047232. ✗ A is false, R is true

Question Number : 9 Question Id : 76439011833 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If θ_1, θ_2 are solutions of the equation $\cos 2\theta + 2 \sin 2\theta = 3$, $\tan \theta_1 \neq \tan \theta_2$, then $\cot \theta_1 \cdot \cot \theta_2 =$

Options :

76439047233. ✗ 0

76439047234. ✗ 1/2

76439047235. ✗ 1

76439047236. ✓ 2

Question Number : 10 Question Id : 76439011834 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047237. ✗ 0

76439047238. ✓ $1/\sqrt{3}$

76439047239. ✗ $\sqrt{3}$

76439047240. ✗ 2

Question Number : 11 Question Id : 76439011835 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047241. ✘ -4

76439047242. ✔ -3

76439047243. ✘ 3

76439047244. ✘ 4

Question Number : 12 Question Id : 76439011836 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047245. ✘ r_1, r_2, r_3 are in GP.

76439047246. ✘ a, b, c are in AP.

76439047247. ✔ r_1, r_2, r_3 are in AP.

76439047248. ✘ a, b, c are in GP.

Question Number : 13 Question Id : 76439011837 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Consider a triangle ABC and its incircle. Let $2S$ be the perimeter of the triangle. Let D, E, F

be the points of contact of the incircle with the triangle. Suppose D, E, F lie on AB, BC

and CA respectively, then $AD+BE+CF =$

Options :

76439047249. ✘ $S/2$

76439047250. ✘ $S/3$

76439047251. ✔ S

76439047252. ✘ $2S$

Question Number : 14 Question Id : 76439011838 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047253. ✖ $3/2$

76439047254. ✖ 2

76439047255. ✖ $5/2$

76439047256. ✔ 3

Question Number : 15 Question Id : 76439011839 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047257. ✔ -1

76439047258. ✖ 0

76439047259. ✖ 1

76439047260. ✖ 4

Question Number : 16 Question Id : 76439011840 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047261. ✖ first quadrant

76439047262. ✔ second quadrant

76439047263. ✖ third quadrant

76439047264. ✖ fourth quadrant

Question Number : 17 Question Id : 76439011841 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047265. ✓ $x^2 + y^2 - 6x - 4y + 9 = 0$

76439047266. ✗ $x^2 + y^2 + 6x - 4y + 9 = 0$

76439047267. ✗ $x^2 + y^2 - 6x - 4y + 13 = 0$

76439047268. ✗ $x^2 + y^2 - 6x - 4y + 5 = 0$

Question Number : 18 Question Id : 76439011842 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047269. ✓ $x^2 + y^2 - x - y = 0$

76439047270. ✗ $x^2 + y^2 + x - y = 0$

76439047271. ✗ $x^2 + y^2 - x + y = 0$

76439047272. ✗ $x^2 + y^2 + x + y - 2 = 0$

Question Number : 19 Question Id : 76439011843 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047273. ✗ $\{-4, 4\}$

$$\{-\sqrt{2}, \sqrt{2}\}$$

76439047274. ✖

$$\{-2, 2\}$$

76439047275. ✔

$$\{4\}$$

76439047276. ✖

Question Number : 20 Question Id : 76439011844 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

$$\frac{4a^2}{a^2+x^2}$$

76439047277. ✖

$$\frac{4a}{a^2+x^2}$$

76439047278. ✔

$$\frac{2a}{a^2+x^2}$$

76439047279. ✖

$$\frac{2a^2}{a^2+x^2}$$

76439047280. ✖

Question Number : 21 Question Id : 76439011845 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

at x , then x belongs to the set

Options :

$$\{-1, -2, -3\}$$

76439047281. ✖

$$\mathbb{R} - \{1, 2, 3\}$$

76439047282. ✖

$$\mathbb{R} - \{-1, -2, -3\}$$

76439047283. ✔

$$\{1, 2, 3\}$$

76439047284. ✖

Question Number : 22 Question Id : 76439011846 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047285. ✖ my

76439047286. ✔ $-m^2y$

76439047287. ✖ m^2y

76439047288. ✖ $-my$

Question Number : 23 Question Id : 76439011847 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047289. ✖ 0

76439047290. ✔ -1

76439047291. ✖ 1

76439047292. ✖ 2

Question Number : 24 Question Id : 76439011848 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047293. ✖ (-1, 1)

76439047294. ✖ $(-\infty, 1)$

76439047295. ✖ $(-1, \infty)$

76439047296. ✔ $(-\infty, -1) \cup (1, \infty)$

Question Number : 25 Question Id : 76439011849 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047297. ✘ $2u$

76439047298. ✔ $\sin 2u$

76439047299. ✘ $\cos 2u$

76439047300. ✘ $\tan 2u$

Question Number : 26 Question Id : 76439011850 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047301. ✘ 1

76439047302. ✘ e

76439047303. ✔ $e^{1/3}$

76439047304. ✘ e^3

Question Number : 27 Question Id : 76439011851 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047305. ✘ $\log(1 + e^{-x}) + C$

76439047306. ✘ $\log(1 + e^x) + C$

76439047307. ✔ $\log\left(\frac{e^x}{1 + e^x}\right) + C$

76439047308. ✘ $-\log(1 + e^x) + C$

Question Number : 28 Question Id : 76439011852 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

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

76439047309. ✓

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

76439047310. ✗

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

76439047311. ✗

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

76439047312. ✗

Question Number : 29 Question Id : 76439011853 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047313. ✓ 0

76439047314. ✗ 1

76439047315. ✗ -1

76439047316. ✗ 2

Question Number : 30 Question Id : 76439011854 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047317. ✖ $\frac{3^{k+1}}{k+1}$

76439047318. ✔ $\frac{3^k}{k+1}$

76439047319. ✖ $\frac{3^{k+1}}{k}$

76439047320. ✖ $\frac{3^k}{k!}$

Question Number : 31 Question Id : 76439011855 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

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

Options :

76439047321. ✖ $2\sqrt{2}$

76439047322. ✖ $2 + \sqrt{2}$

76439047323. ✔ $2 - \sqrt{2}$

76439047324. ✖ $\sqrt{2}$

Question Number : 32 Question Id : 76439011856 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

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

Options :

76439047325. ✖ $\frac{2\pi a^3}{5}$

76439047326. ✓ $\frac{4\pi a^3}{5}$

76439047327. ✗ $\frac{8\pi a^3}{5}$

76439047328. ✗ πa^3

Question Number : 33 Question Id : 76439011857 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047329. ✗ $A\sqrt{2}$

76439047330. ✓ $\frac{A}{\sqrt{2}}$

76439047331. ✗ A

76439047332. ✗ $2A$

Question Number : 34 Question Id : 76439011858 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

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

Options :

76439047333. ✗ 1.31212

76439047334. ✓ 1.32942

76439047335. ✗ 1.33212

76439047336. ✖ 1.32121

Question Number : 35 Question Id : 76439011859 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047337. ✖ 2

76439047338. ✔ 3

76439047339. ✖ 4

76439047340. ✖ 6

Question Number : 36 Question Id : 76439011860 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047341. ✖ $(1 + x^2)(1 + y^2) = Ce^{x^2}$

76439047342. ✖ $(1 + x^2) / (1 + y^2) = Ce^{x^2}$

76439047343. ✔ $(1 + x^2)(1 + y^2) = Cx^2$

76439047344. ✖ $(1 + x^2) / (1 + y^2) = Cx^2$

Question Number : 37 Question Id : 76439011861 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

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

Options :

76439047345. ✖ $\frac{4y}{\pi} = e^{1 - \tan(y/x)}$

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

76439047346. ✓

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

76439047347. ✗

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

76439047348. ✗

Question Number : 38 Question Id : 76439011862 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

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

76439047349. ✗

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

76439047350. ✗

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

76439047351. ✓

$$y' = 2xy(x^2 + y^2)$$

76439047352. ✗

Question Number : 39 Question Id : 76439011863 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

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

Options :

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

76439047353.

76439047354. $e^{-2\sqrt{x}}$

76439047355. $\frac{e^{2\sqrt{x}}}{\sqrt{x}}$

76439047356. $e^{-2\sqrt{x}}$

Question Number : 40 Question Id : 76439011864 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047357. ✓ $\frac{dy}{dx} + \frac{2}{x}y = 4$

76439047358. ✗ $\frac{dy}{dx} + 3y = x$

76439047359. ✗ $\frac{1}{x} \frac{dy}{dx} - \frac{1}{x^2}y = x$

76439047360. ✗ $\frac{dy}{dx} + y = 3x$

Question Number : 41 Question Id : 76439011865 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047361. ✓ $4x^2 e^{2x} + \cos 2x$

76439047362. ✗ $x^2 e^{2x} + \cos 2x$

76439047363. ✗ $4x e^{2x} - \cos 2x$

76439047364. ✗ $4x^2 e^x + \cos 2x$

Question Number : 42 Question Id : 76439011866 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047365. ✘ $C_1 e^{-x} + C_2 e^{-2x}$

76439047366. ✔ $C_1 x^{-1} + C_2 x^{-2}$

76439047367. ✘ $C_1 e^x + C_2 e^{2x}$

76439047368. ✘ $C_1 x^1 + C_2 x^2$

Question Number : 43 Question Id : 76439011867 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047369. ✔ $\frac{2}{(s+3)^3}$

76439047370. ✘ $\frac{2}{(s-3)^3}$

76439047371. ✘ $\frac{3}{(s+3)^3}$

76439047372. ✘ $\frac{-3}{(s+3)^3}$

Question Number : 44 Question Id : 76439011868 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047373. ✔ $\frac{2s}{(1+s^2)^2}$

76439047374. ✘ $\frac{2s}{(1+s^2)^3}$

76439047375. ✘ $\frac{-2s}{(1+s^2)^2}$

76439047376. ✘ $\frac{-2s}{(1+s^2)^3}$

Question Number : 45 Question Id : 76439011869 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047377. ✘ e^{3t}

76439047378. ✘ e^{-3t}

76439047379. ✘ $\cos 3t$

76439047380. ✔ $\sinh 3t$

Question Number : 46 Question Id : 76439011870 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047381. ✔ $t - \sin t$

76439047382. ✘ $t + \sin t$

76439047383. ✘ $2t - \sin t$

76439047384. ✘ $2t + \sin t$

Question Number : 47 Question Id : 76439011871 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047385. ✘ $\frac{1}{(s-3)^2}$

76439047386. ✔ $\frac{-1}{(s+3)^2}$

76439047387. ✘ $\frac{1}{s+3}$

76439047388. ✘ $\frac{-1}{s-3}$

Question Number : 48 Question Id : 76439011872 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047389. ✘ $\frac{1}{s^2+1}$

76439047390. ✔ $-\frac{1}{s(s^2+1)}$

76439047391. ✘ $\frac{s}{s^2+1}$

76439047392. ✘ $-\frac{s}{s^2+1}$

Question Number : 49 Question Id : 76439011873 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047393. ✖ $f(x) = \frac{\pi^2}{3} + 4 \sum_{n=1}^{\infty} \frac{(-1)^n}{n^2} \cos(nx)$

76439047394. ✔ $f(x) = \frac{2\pi^2}{3} + 4 \sum_{n=1}^{\infty} \frac{(-1)^n}{n^2} \cos(nx)$

76439047395. ✖ $f(x) = \frac{\pi^2}{3} + \sum_{n=1}^{\infty} \frac{(-1)^n}{n^2} \cos(nx)$

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

76439047396. ✖

Question Number : 50 Question Id : 76439011874 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047397. ✖ $1 + 4 \sum_{n=1}^{\infty} \frac{(-1)^n}{n^2} \sin (nx)$

76439047398. ✖ $1 + 4 \sum_{n=1}^{\infty} \frac{(-1)^n}{n^2} \cos (nx)$

76439047399. ✖ $1 - 4 \sum_{n=1}^{\infty} \frac{(-1)^n}{n} \cos (nx)$

76439047400. ✔ $1 - 4 \sum_{n=1}^{\infty} \frac{(-1)^n}{n} \sin (nx)$

Physics

Section Id :	764390232
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	25
Number of Questions to be attempted :	25
Section Marks :	25
Display Number Panel :	Yes
Group All Questions :	Yes
Mark As Answered Required? :	Yes
Sub-Section Number :	1
Sub-Section Id :	764390262
Question Shuffling Allowed :	Yes

Question Number : 51 Question Id : 76439011875 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The dimensional formula for Kinetic energy is

Options :

76439047401. ✘ $M^0 L^0 T^0$

76439047402. ✔ $M L^2 T^{-2}$

76439047403. ✘ $M L^2 T^{-1}$

76439047404. ✘ $M L T^{-2}$

Question Number : 52 Question Id : 76439011876 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Match the following quantities with its SI Units

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

Choose the correct option from the following:

Options :

76439047405. ✔ a-iv, b-ii, c-i, d-iii

76439047406. ✘ a-iv, b-i, c-ii, d-iii

76439047407. ✘ a-i, b-ii, c-iii, d-iv

76439047408. ✘ a-iv, b-ii, c-iii, d-i

Question Number : 53 Question Id : 76439011877 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047409. ✔ $h\nu = \frac{1}{2} m v_{\max}^2 + W_0$

76439047410. ✘ $h\nu = \frac{1}{2}mv_{\max}^2 - W_0$

76439047411. ✘ $h\nu_0 = \frac{1}{2}mv_{\max}^2 + h\nu$

76439047412. ✘ $h\nu_0 = \frac{1}{2}mv_{\max}^2 - h\nu$

Question Number : 54 Question Id : 76439011878 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The electrical resistance for superconductor is

Options :

76439047413. ✘ Infinity

76439047414. ✔ Zero

76439047415. ✘ Very high

76439047416. ✘ Depends on the material

Question Number : 55 Question Id : 76439011879 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Convert -15°C into Fahrenheit scale

Options :

76439047417. ✘ 20°F

76439047418. ✘ 15°F

76439047419. ✘ 10°F

76439047420. ✔ 5°F

Question Number : 56 Question Id : 76439011880 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

A. Change in its internal energy

B. the work done by it

Choose the correct option from the following:

Options :

76439047421. ✘ only A is correct

76439047422. ✘ only B is correct

76439047423. ✔ Both A and B are correct

76439047424. ✘ Both A and B are not correct

Question Number : 57 Question Id : 76439011881 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047425. ✔ $\frac{\pi}{2}$

76439047426. ✘ π

76439047427. ✘ $\frac{\pi}{3}$

76439047428. ✘ $\frac{\pi}{4}$

Question Number : 58 Question Id : 76439011882 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047429. ✘ 20 kg

76439047430. ✘ $10\sqrt{2}$ kg

76439047431. ✘ 30 kg

76439047432. ✔ $\frac{10}{\sqrt{2}}$ kg

Question Number : 59 Question Id : 76439011883 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Velocity of the sound is ($g=9.8 \text{ m/sec}^2$).

Options :

76439047433. ✘ 592 m/sec

76439047434. ✘ 692 m/sec

76439047435. ✔ 392 m/sec

76439047436. ✘ 292 m/sec

Question Number : 60 Question Id : 76439011884 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

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

Options :

76439047437. ✘ $\sqrt{3} \frac{u^2}{2g}$

76439047438. ✘ $\frac{u^2}{g}$

76439047439. ✔ $\frac{u^2}{2g}$

76439047440. ✘ $\frac{\sqrt{3}u^2}{2g}$

Question Number : 61 Question Id : 76439011885 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047441. ✘ 20 sec

76439047442. ✔ 10 sec

76439047443. ✘ 30 sec

76439047444. ✘ 5 sec

Question Number : 62 Question Id : 76439011886 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

If μ_s , μ_k , and μ_r are the co-efficient of static, kinetic and rolling friction respectively then

Options :

76439047445. ✘ $\mu_s > \mu_k < \mu_r$

76439047446. ✘ $\mu_s < \mu_k > \mu_r$

76439047447. ✘ $\mu_s = \mu_k = \mu_r$

76439047448. ✔ $\mu_s > \mu_k > \mu_r$

Question Number : 63 Question Id : 76439011887 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047449. ✘ 196N

76439047450. ✘ 490N

76439047451. ✔ 392N

76439047452. ✖ 294N

Question Number : 64 Question Id : 76439011888 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047453. ✖ Time

76439047454. ✔ Work

76439047455. ✖ Impulse

76439047456. ✖ Power

Question Number : 65 Question Id : 76439011889 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047457. ✖ Its potential energy increases and kinetic energy decreases

76439047458. ✔ Its kinetic energy increases and potential energy decreases

76439047459. ✖ Both potential energy and kinetic energy of that body increases

76439047460. ✖ Both potential energy and kinetic energy decreases

Question Number : 66 Question Id : 76439011890 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047461. ✖ 790W

76439047462. ✔ 784W

76439047463. ✘ 768W

76439047464. ✘ 755W

Question Number : 67 Question Id : 76439011891 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047465. ✘ 0.15 meters

76439047466. ✘ 1.5 meters

76439047467. ✘ 2 meters

76439047468. ✔ 0.165 meters

Question Number : 68 Question Id : 76439011892 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047469. ✔ 1.57 sec

76439047470. ✘ 2.57 sec

76439047471. ✘ 2 sec

76439047472. ✘ 3 sec

Question Number : 69 Question Id : 76439011893 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The frequency range of the audible sounds is

Options :

76439047473. ✖ 20KHz to 20MHz

76439047474. ✔ 20Hz to 20,000 Hz

76439047475. ✖ Less than 20 Hz

76439047476. ✖ Greater than 20,000 Hz

Question Number : 70 Question Id : 76439011894 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047477. ✔ $n = \frac{n_o V}{V - V_s}$

76439047478. ✖ $n = \frac{n_o (V - V_s)}{V}$

76439047479. ✖ $n = \frac{nV}{V_o}$

76439047480. ✖ $n = \frac{nV_o}{V}$

Question Number : 71 Question Id : 76439011895 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

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

Options :

76439047481. $450 \times 10^{-6} \text{ J}$

76439047482. $330 \times 10^{-4} \text{ J}$

76439047483. $5 \times 10^{-6} \text{ J}$

76439047484. $539.6 \times 10^{-6} \text{ J}$

Question Number : 72 Question Id : 76439011896 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047485. ✘ $16.6 \times 10^6 \text{ N/m}^2$

76439047486. ✘ $20 \times 10^6 \text{ N/m}^2$

76439047487. ✔ $2.292 \times 10^7 \text{ N/m}^2$

76439047488. ✘ $32 \times 10^7 \text{ N/m}^2$

Question Number : 73 Question Id : 76439011897 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047489. ✔ $\vec{M} \times \vec{B}$

76439047490. ✘ $\vec{B} \times \vec{M}$

76439047491. ✘ $\vec{M} \cdot \vec{B}$

76439047492. ✘ $-\vec{M} \cdot \vec{B}$

Question Number : 74 Question Id : 76439011898 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The magnetism of magnet is due to

Options :

76439047493. ✘ Earth

Cosmic rays

76439047494. ✘

Spin motion of electron

76439047495. ✔

Pressure of big magnet inside the earth

76439047496. ✘

Question Number : 75 Question Id : 76439011899 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

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

Options :

50 centimetres

76439047497. ✘

60 centimetres

76439047498. ✔

30 centimetres

76439047499. ✘

40 centimetres

76439047500. ✘

Chemistry

Section Id :	764390233
Section Number :	3
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	25
Number of Questions to be attempted :	25
Section Marks :	25
Display Number Panel :	Yes
Group All Questions :	Yes
Mark As Answered Required? :	Yes
Sub-Section Number :	1
Sub-Section Id :	764390263
Question Shuffling Allowed :	Yes

Question Number : 76 Question Id : 76439011900 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Match the following

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

Choose the correct option from the following:

Options :

76439047501. ✘ A-2, B-1, C-4, D-3

76439047502. ✔ A-4, B-3, C-2, D-1

76439047503. ✘ A-4, B-3, C-1, D-2

76439047504. ✘ A-3, B-2, C-4, D-1

Question Number : 77 Question Id : 76439011901 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Select the incorrect statement from the following options.

Options :

76439047505. ✘ Atomic number is equal to no of electrons

76439047506. ✔ Mass number is equal to number of protons plus number of electrons

76439047507. ✘ Number of neutrons is the difference between mass number and atomic number

76439047508. ✘ Nucleus of an atom consist protons and neutrons

Question Number : 78 Question Id : 76439011902 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which one of the following statements is false?

Options :

76439047509. ✘ The oxidation number of oxygen in peroxide is '-1'

76439047510. ✘ The oxidation number of hydrogen in hydrides is negative

76439047511. ✔ The oxidation number of F, Cl, Br, I is always +1

76439047512. ✘ The oxidation number of a free element is zero

Question Number : 79 Question Id : 76439011903 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

What is the required volume of water to prepare 1.8 M H_2SO_4 solution from 250 ml of 9M H_2SO_4 solution?

Options :

76439047513. ✘ 750ml

76439047514. ✘ 500 ml

76439047515. ✘ 250 ml

76439047516. ✔ 1000 ml

Question Number : 80 Question Id : 76439011904 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047517. ✘ 90gm

76439047518. ✘ 85 gm

76439047519. ✔ 45 gm

76439047520. ✘ 55 gm

Question Number : 81 Question Id : 76439011905 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which of the following compounds are Lewis acids

Options :

76439047521. ✘ H_2 , NH_3 , NaOH

76439047522. ✘ CH_3COOH , Cl^- , OH^-

76439047523. ✘ C_6H_6, N_2, CH_3OH

76439047524. ✔ $FeCl_3, BCl_3, H^+$

Question Number : 82 Question Id : 76439011906 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

pH value of 0.01 M HCl solution is

Options :

76439047525. ✔ 2

76439047526. ✘ 1

76439047527. ✘ 4

76439047528. ✘ 3

Question Number : 83 Question Id : 76439011907 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Match the following

- | | |
|----------------------------|----------------------------|
| (i) Ionic product of water | (a) $NH_4Cl + NH_4OH$ |
| (ii) Basic buffer | (b) $CH_3COOH + CH_3COONa$ |
| (iii) Bronsted Base | (c) $[H^+][OH^-]$ |
| (iv) Acidic buffer | (d) NH_3 |

Choose the correct option from the following:

Options :

76439047529. ✘ i-a, ii-b, iii-c, iv-d

76439047530. ✘ i-d, ii-c, iii-b, iv-a

76439047531. ✔ i-c, ii-a, iii-d, iv-b

76439047532. ✘ i-b, ii-d, iii-a, iv-c

Question Number : 84 Question Id : 76439011908 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Match the following

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

Choose the correct option from the following:

Options :

76439047533. ✓ i-c, ii-a, iii-d, iv-b

76439047534. ✗ i-c, ii-d, iii-b, iv-a

76439047535. ✗ i-b, ii-a, iii-c, iv-d

76439047536. ✗ i-a, ii-d, iii-c, iv-b

Question Number : 85 Question Id : 76439011909 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

German silver consists of

Options :

76439047537. ✗ Zn, Ni, Mn

76439047538. ✗ Cu, Al, Ni

76439047539. ✓ Cu, Zn, Ni

76439047540. ✗ Fe, Cu, Ni

Question Number : 86 Question Id : 76439011910 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Electrolyte that is present in salt bridge of Galvanic cell is

Options :

76439047541. ✗ NaCl aqueous

76439047542. ✗ Fused NaCl

76439047543. ✓ KCl

76439047544. ✖ HCl

Question Number : 87 Question Id : 76439011911 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047545. ✖ Hydrogen

76439047546. ✔ Lithium

76439047547. ✖ Copper

76439047548. ✖ Gold

Question Number : 88 Question Id : 76439011912 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Statement a: Pure metal resists corrosion

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

Choose the correct option from the following:

Options :

76439047549. ✖ Both the statements are correct

76439047550. ✖ Both the statements are incorrect

76439047551. ✖ Statement 'a' is incorrect, 'b' is correct

76439047552. ✔ Statement 'a' is correct, 'b' is incorrect

Question Number : 89 Question Id : 76439011913 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047553. ✖ Copper

76439047554. ✓ Magnesium

76439047555. ✗ Gold

76439047556. ✗ Cadmium

Question Number : 90 Question Id : 76439011914 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Match the following

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

Choose the correct option from the following:

Options :

76439047557. ✗ i-c, ii-b, iii-d, iv-a

76439047558. ✗ i-c, ii-a, iii-d, iv-b

76439047559. ✓ i-c, ii-d, iii-b, iv-a

76439047560. ✗ i-c, ii-b, iii-a, iv-d

Question Number : 91 Question Id : 76439011915 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Permanent Hardness of water is due to

Options :

76439047561. ✗ Hydroxides

76439047562. ✗ Bicarbonates

76439047563. ✓ Chlorides

76439047564. ✗ Carbonates

Question Number : 92 Question Id : 76439011916 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is Unit of hardness of water

Options :

76439047565. ✘ mg

76439047566. ✔ ppm

76439047567. ✘ cm

76439047568. ✘ Siemens

Question Number : 93 Question Id : 76439011917 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047569. ✔ Osmosis

76439047570. ✘ Reverse Osmosis

76439047571. ✘ Electrolysis

76439047572. ✘ Flash distillation

Question Number : 94 Question Id : 76439011918 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The monomers in the preparation of Nylon 6:6 are

Options :

76439047573. ✘ Vinyl chloride and Hexamethylene diamine

76439047574. ✘ Styrene and Adipic acid

76439047575. ✘ Phenol and Formaldehyde

76439047576. ✔ Adipic acid and Hexamethylene diamine

Question Number : 95 Question Id : 76439011919 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Natural rubber is composed of _____ monomer units

Options :

76439047577. ✘ Isobutylene

76439047578. ✘ Isopropylene

76439047579. ✔ Isoprene

76439047580. ✘ Butadiene

Question Number : 96 Question Id : 76439011920 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Polychloroprene is also known as

Options :

76439047581. ✔ Neoprene

76439047582. ✘ Butyl rubber

76439047583. ✘ Buna-S

76439047584. ✘ PVC

Question Number : 97 Question Id : 76439011921 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Match the following

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

Choose the correct option from the following:

Options :

76439047585. ✔ 1-D, 2-A, 3-B, 4-C

76439047586. ✘ 1-D, 2-A, 3-C, 4-B

76439047587. ✘ 1-B, 2-A, 3-D, 4-C

1-C, 2-A, 3-D, 4-B

76439047588. ✘

Question Number : 98 Question Id : 76439011922 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047589. ✘ Methyl cyanide

76439047590. ✘ Ethyl Isocyanate

76439047591. ✘ Hydrogen Cyanide

76439047592. ✔ Methyl Isocyanate

Question Number : 99 Question Id : 76439011923 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

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

Options :

76439047593. ✔ Carbon monoxide

76439047594. ✘ Ozone

76439047595. ✘ Methane

76439047596. ✘ Water vapour

Question Number : 100 Question Id : 76439011924 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Match the following

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

Choose the correct option from the following:

Options :

76439047597. ✓ i-B, ii-D, iii-A, iv-C

76439047598. ✗ i-D, ii-B, iii-A, iv -C

76439047599. ✗ i-D, ii-A, iii-B, iv-C

76439047600. ✗ i-B, ii-C, iii-D, iv-A

Electrical and Electronics Engineering

Section Id :	764390234
Section Number :	4
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	100
Number of Questions to be attempted :	100
Section Marks :	100
Display Number Panel :	Yes
Group All Questions :	Yes
Mark As Answered Required? :	Yes
Sub-Section Number :	1
Sub-Section Id :	764390264
Question Shuffling Allowed :	Yes

Question Number : 101 Question Id : 76439011925 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A battery of emf 4V has an internal resistance of 0.2 ohms, when a load resistance of 1.8 ohms

connected across it, the potential difference across its terminals will be

Options :

76439047601. ✗ 4V

76439047602. ✓ 3.6 V

76439047603. ✗ 1.5 V

76439047604. ✗ 2.6 V

Question Number : 102 Question Id : 76439011926 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

An iron ring 10 cm in diameter and 8cm^2 in cross-section is wound with 300 turns of wire. For a flux density of 1.2 wb/m^2 and a relative permeability of 500, the Inductance of the coil is

Options :

76439047605. ✘ 0.0524 H

76439047606. ✔ 0.1440 H

76439047607. ✘ 0.2560 H

76439047608. ✘ 0.3261 H

Question Number : 103 Question Id : 76439011927 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A resistance of 10 ohms is connected across a supply of 200 V. If a resistance R is now connected in parallel with a 10 ohms resistance, the current drawn from the supply gets doubled. The value of the unknown resistance 'R' is

Options :

76439047609. ✘ 5 Ω

76439047610. ✔ 10 Ω

76439047611. ✘ 15 Ω

76439047612. ✘ 20 Ω

Question Number : 104 Question Id : 76439011928 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

1 kWh is equal to

Options :

76439047613. ✔ 860 K.cal

76439047614. ✘ 36×10^5 ergs

76439047615. ✘ 4,180 Joules

100 Watt-Hours

76439047616. ✖

Question Number : 105 Question Id : 76439011929 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Electrical conducting material possessing negative temperature co-efficient is

Options :

Copper

76439047617. ✖

Aluminium

76439047618. ✖

Silver

76439047619. ✖

Carbon

76439047620. ✔

Question Number : 106 Question Id : 76439011930 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

When temperature of the insulating material increases its resistivity

Options :

Increases

76439047621. ✖

Decreases

76439047622. ✔

Remains same

76439047623. ✖

Increases by four times

76439047624. ✖

Question Number : 107 Question Id : 76439011931 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Manganin wire is commonly used for

Options :

Elements of electrical furnaces

76439047625. ✖

Filaments of incandescent lamps

76439047626. ✖

Instrument shunt

76439047627. ✓

Field winding of DC motors

76439047628. ✘

Question Number : 108 Question Id : 76439011932 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Self inductance of two coils are $L_1=2H$ and $L_2=8H$. The coil L_1 produces a magnetic flux of 80 μwb of which only 60 μwb are linked with coil L_2 . The mutual inductance of the two coils is

Options :

76439047629. ✘ 1H

76439047630. ✘ 2H

76439047631. ✓ 3H

76439047632. ✘ 4H

Question Number : 109 Question Id : 76439011933 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A copper wire has resistance of 0.85 ohms at 20°C , temperature co-efficient of resistance of copper at 0°C is 0.004°C . The resistance at 40°C is

Options :

76439047633. ✘ 0.8243 Ω

76439047634. ✓ 0.9129 Ω

76439047635. ✘ 1.4356 Ω

76439047636. ✘ 0.8562 Ω

Question Number : 110 Question Id : 76439011934 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A copper wire of 1 cm diameter has a resistance of 0.15Ω . It is drawn under pressure and its diameter was reduced to 50%. The new value of resistance of the wire is

Options :

76439047637. ✘ 1.3Ω

76439047638. ✔ 2.4Ω

76439047639. ✘ 3.5Ω

76439047640. ✘ 4.6Ω

Question Number : 111 Question Id : 76439011935 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The commutator segments are insulated from each other using

Options :

76439047641. ✔ Mica

76439047642. ✘ Wood

76439047643. ✘ Paper

76439047644. ✘ Glass

Question Number : 112 Question Id : 76439011936 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A DC series Motor is started at no-load, its speed will be

Options :

76439047645. ✘ Zero

76439047646. ✘ Rated speed

76439047647. ✘ Below rated speed

76439047648. ✔ Infinite

Question Number : 113 Question Id : 76439011937 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A six pole wave wound DC shunt generator has 300 conductors on its armature. The flux per pole is 20 mwb. When it runs at 1,000 rpm, the emf generated is

Options :

76439047649. ✘ 100 V

76439047650. ✘ 150 V

76439047651. ✔ 300 V

76439047652. ✘ 210 V

Question Number : 114 Question Id : 76439011938 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A 100 V DC series Motor takes 45 A when running at 750 rpm. Its armature resistance is 0.22 ohms, while the series field resistance is 0.13 ohms. Iron and friction losses amount to 750 W. The shaft power of the DC series motor is

Options :

76439047653. ✘ 1.041 kW

76439047654. ✘ 2.041 kW

76439047655. ✔ 3.041 kW

76439047656. ✘ 4.041 kW

Question Number : 115 Question Id : 76439011939 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The megger is used to measure

Options :

Current

76439047657. ✘

Voltage

76439047658. ✘

Insulation Resistance

76439047659. ✔

Capacitance

76439047660. ✘

Question Number : 116 Question Id : 76439011940 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The most efficient form of damping employed in electrical instruments is

Options :

Air- friction

76439047661. ✘

Fluid- friction

76439047662. ✘

Eddy-current

76439047663. ✔

Gas – friction

76439047664. ✘

Question Number : 117 Question Id : 76439011941 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The KWh meter can be classified as

Options :

Deflecting instrument

76439047665. ✘

Digital instrument

76439047666. ✘

Recording instrument

76439047667. ✔

Indicating instrument

76439047668. ✘

Question Number : 118 Question Id : 76439011942 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The meter suitable for only direct current measurements is

Options :

76439047669. ✘ Moving Iron type

76439047670. ✔ Permanent Magnet type

76439047671. ✘ Electro Dynamic type

76439047672. ✘ Hot-wire type

Question Number : 119 Question Id : 76439011943 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The moving Iron instruments have _____ scale

Options :

76439047673. ✘ Uniform

76439047674. ✔ Non-uniform

76439047675. ✘ No-Scale

76439047676. ✘ Digital

Question Number : 120 Question Id : 76439011944 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The damping force acts on the moving system of an indicating instrument, only when it is

Options :

76439047677. ✔ Moving

76439047678. ✘ Stationary

76439047679. ✘ Just starting to move

76439047680. ✘ Near its full deflection

Question Number : 121 Question Id : 76439011945 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

For a sinusoidal voltage or current, Peak factor is

Options :

76439047681. ✘ $\frac{\text{R. M. S. Value}}{\text{Average Value}}$

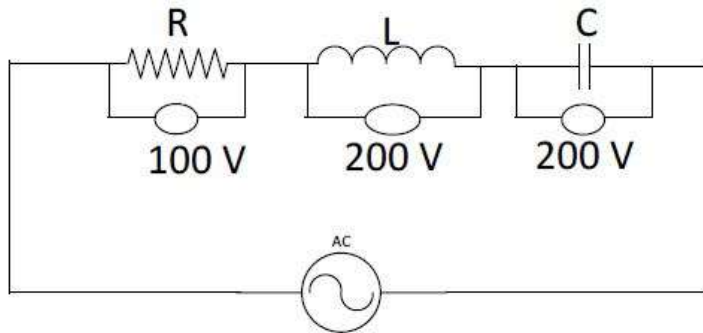
76439047682. ✘ $\frac{\text{Average Value}}{\text{R. M. S. Value}}$

76439047683. ✔ $\frac{\text{Max. Value}}{\text{R. M. S. Value}}$

76439047684. ✘ $\frac{\text{R. M. S. Value}}{\text{Max. Value}}$

Question Number : 122 Question Id : 76439011946 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

For the series R-L-C circuit shown below, the supply voltage is



Options :

76439047685. ✘ 500 V

76439047686. ✘ 200 V

76439047687. ✔ 100 V

76439047688. ✘ 400 V

Question Number : 123 Question Id : 76439011947 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is

Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

W_1 and W_2 are the readings of two wattmeters used to measure power of a 3-phase balanced load. The reactive power drawn by the load is

Options :

76439047689. ✘ W_1+W_2

76439047690. ✘ W_1-W_2

76439047691. ✘ $\sqrt{3}(W_1+W_2)$

76439047692. ✔ $\sqrt{3}(W_1-W_2)$

Question Number : 124 Question Id : 76439011948 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Three coils, each having a resistance of 20Ω and an inductive reactance of 15Ω are connected in a star to a 400V, 3-phase, 50Hz supply. Its power factor is

Options :

76439047693. ✘ 0.2 lag

76439047694. ✘ 0.4 lag

76439047695. ✘ 0.6 lag

76439047696. ✔ 0.8 lag

Question Number : 125 Question Id : 76439011949 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

In case of an Ideal transformer on No-load, the primary supply voltage and current are

Options :

76439047697. ✘ Inphase with each other

Out of phase with each other

76439047698. ✘

Mutually perpendicular to each other

76439047699. ✔

At Φ^0 degree with each other, where $0^0 < \Phi^0 < 90^0$

76439047700. ✘

Question Number : 126 Question Id : 76439011950 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A 10 kVA, 2000/400 V single-phase transformer has $R_1 = 5 \Omega$, $X_1 = 12 \Omega$, $R_2 = 0.2 \Omega$

and $X_2 = 0.48 \Omega$. The equivalent resistance of a transformer referred to primary is

Options :

26 Ω

76439047701. ✘

5 Ω

76439047702. ✘

10 Ω

76439047703. ✔

0.4 Ω

76439047704. ✘

Question Number : 127 Question Id : 76439011951 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

In a transformer, zero voltage regulation is

Options :

Not Possible

76439047705. ✘

Possible at unity power factor load

76439047706. ✘

Possible at leading power factor load

76439047707. ✔

Possible at lagging power factor load

76439047708. ✘

Question Number : 128 Question Id : 76439011952 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is

Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is load at which maximum efficiency occurs in case of a 100 kVA transformer with iron loss of 1kW and full load copper loss of 4kW.

Options :

76439047709. ✘ 100 kVA

76439047710. ✔ 50 kVA

76439047711. ✘ 25.2 kVA

76439047712. ✘ 70.7 k VA

Question Number : 129 Question Id : 76439011953 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In Star-Star connection of three-phase transformer, if V_L is the line voltage and I_L is the line current then phase voltage and phase current is given by

Options :

76439047713. ✘ $V_L, I_L/\sqrt{3}$

76439047714. ✘ V_L, I_L

76439047715. ✘ $\sqrt{3}V_L, I_L/\sqrt{3}$

76439047716. ✔ $V_L/\sqrt{3}, I_L$

Question Number : 130 Question Id : 76439011954 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A 20 kVA, 200/500 V, 50 HZ single-phase transformer is to be employed as an auto transformer to supply a 700V circuit from a 200 V source. What are its voltage ratio and kVA rating respectively?

Options :

2.5 and 20

76439047717. ✘

3.5 and 20

76439047718. ✘

2.5 and 28

76439047719. ✘

3.5 and 28

76439047720. ✔

Question Number : 131 Question Id : 76439011955 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Match the following?

Group -I

Group-II

P. Short pitch winding

l) cylindrical rotor type alternators

Q. Coil span factor

m) salient pole rotor type alternator

R. Concentrated winding

n) $\cos \frac{\alpha}{2}$ where $\alpha = \text{short pitch angle}$

S. Turbo-alternators

o) Improved waveform of the generated emf per phase

Choose the correct option from the following:

Options :

P-m; Q-n; R-l; S-o

76439047721. ✘

P-o; Q-n; R-m; S-l

76439047722. ✔

P-o; Q-n; R-l; S-m

76439047723. ✘

P-m; Q-n; R-o; S-l

76439047724. ✖

Question Number : 132 Question Id : 76439011956 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

With constant excitation(E_f), Terminal voltage(V_t) and synchronous impedance(Z_s); the condition for maximum input to generator is

Options :

load angle (δ) = Impedance angle (θ)

76439047725. ✖

load angle (δ) = 180° – impedance angle (θ)

76439047726. ✔

load angle (δ) = 90° – impedance angle (θ)

76439047727. ✖

load angle (δ) = 90° + Impedance angle (θ)

76439047728. ✖

Question Number : 133 Question Id : 76439011957 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which of the following statements is /are correct?

- A) When a 3-phase synchronous motor is running at synchronous speed, the damper windings produces damping torque.
- B) Damper winding is provided in a poly phase synchronous motor in order to prevent hunting
- C) A synchronous condenser is an over excited synchronous motor without mechanical load
- D) While starting a 3-Phase synchronous motor, its field winding should be open circuited

Choose the correct option from the following:

Options :

A, B, C and D

76439047729. ✖

C and D only

76439047730. ✘

A, B and C only

76439047731. ✘

B and C only

76439047732. ✔

Question Number : 134 Question Id : 76439011958 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The ability of the synchronous motor to remain in synchronism under rated load conditions is called

Options :

Starting torque

76439047733. ✘

Pull-in torque

76439047734. ✘

Accelerating torque

76439047735. ✘

Pull-out torque

76439047736. ✔

Question Number : 135 Question Id : 76439011959 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The stator current and power factor of a 3-phase induction motor under No-load condition are respectively in the range of

Options :

10 to 14 % of rated current and 0.1 to 0.3 lagging

76439047737. ✘

30 to 50 % of rated current and 0.85 to 0.88 lagging

76439047738. ✘

10 to 14 % of rated current and 0.85 to 0.88 lagging

76439047739. ✘

30 to 50 % of rated current and 0.1 to 0.3 lagging

76439047740. ✔

Question Number : 136 Question Id : 76439011960 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A 4-pole, 3-phase, 50 Hz induction motor has rotor resistance of 1.5Ω runs at 1400 rpm. The rotor resistance equivalent of mechanical power output is _____ ohms.

Options :

76439047741. ✔ 21

76439047742. ✘ 22.5

76439047743. ✘ 1.5

76439047744. ✘ 42

Question Number : 137 Question Id : 76439011961 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

In a 3-Phase SCIM, Applied voltage is reduced to 'y' times its rated value. Then, its starting line current from mains and starting torque by auto-transformer starting would reduce respectively from their corresponding direct switch values by a factor of

Options :

76439047745. ✘ y, y^2

76439047746. ✘ y^2, y

76439047747. ✔ y^2, y^2

76439047748. ✘ y, y

Question Number : 138 Question Id : 76439011962 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The following tests are conducted on a 3-phase induction motor

P: No load test

Q: Blocked rotor Test

R: Stator resistance test

Which of the above tests are required to draw the complete circle diagram of 3-phase induction motor?

Options :

P & Q only

76439047749. ✘

Q & R only

76439047750. ✘

P, Q and R

76439047751. ✔

P and R only

76439047752. ✘

Question Number : 139 Question Id : 76439011963 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A six pole, 50 Hz single phase induction motor is running at 900 rpm. Its slip with respect to forward field and backward field is respectively

Options :

1.9 and 0.1

76439047753. ✘

0.1 and 1.9

76439047754. ✔

1 and 1

76439047755. ✘

0 and 2

76439047756. ✘

Question Number : 140 Question Id : 76439011964 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which of the following statements is /are correct in case of universal motors?

- A) The speed-torque characteristic is a typical shunt type
- B) The no-load speed is very low
- C) the speed torque characteristic of d.c. operation would lie some what higher for a.c. operation
- D) used in vacuum cleaners and portable tools

Choose the correct option from the following:

Options :

76439047757. ✓ C & D only

76439047758. ✗ A & B only

76439047759. ✗ A, B and C only

76439047760. ✗ A, C & D only

Question Number : 141 Question Id : 76439011965 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which of the following has highest calorific value?

Options :

76439047761. ✗ Lignite

76439047762. ✓ Anthracite Coal

76439047763. ✗ Bituminous coal

76439047764. ✗ Magnite

Question Number : 142 Question Id : 76439011966 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which of the following statement is FALSE?

Options :

76439047765. ✘

A surge tank protects the penstock from bursting in case the turbine gets suddenly closed

A steam power station basically works on the Rankine cycle

76439047766. ✘

76439047767. ✔ The thermal efficiency of a modern steam power station is about 70%

A condenser is a device which condenses the steam at the exhaust of turbine

76439047768. ✘

Question Number : 143 Question Id : 76439011967 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

What is the electrical energy generated per hour per cubic metre of water from a reservoir with a head of 100 metres in case of hydro electric station with overall efficiency of 79% ?

Options :

76439047769. ✘ 500 kWh

76439047770. ✘ 1000 kWh

76439047771. ✔ 775 kWh

76439047772. ✘ 675 kWh

Question Number : 144 Question Id : 76439011968 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Absorption of solar radiation at earth's surface occurs due to presence of

Options :

76439047773. ✔ Ozone

76439047774. ✘ Carbon

76439047775. ✘ Sulphur

Nitrogen

76439047776. ✘

Question Number : 145 Question Id : 76439011969 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A wind is blowing at a Velocity 'V' through an area (A) at right angles to it. The density of wind is 'ρ'. The kinetic energy of the wind is _____

Options :

$$\rho AV^3$$

76439047777. ✘

$$\rho AV^2$$

76439047778. ✘

$$\frac{0.5\rho V^3}{A}$$

76439047779. ✘

$$0.5 \rho AV^2$$

76439047780. ✔

Question Number : 146 Question Id : 76439011970 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A Generating Station is to supply four loads whose peak loads are 12MW, 7MW, 11MW and 15 MW.

The diversity factor of the station is 1.5 what is the maximum demand on the station?

Options :

45 MW

76439047781. ✘

30 MW

76439047782. ✔

15 MW

76439047783. ✘

20 MW

76439047784. ✘

Question Number : 147 Question Id : 76439011971 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Match the following ?

Group I

P. Backup protection

Q. Buchholz relay

R. Resistance switching

S. Induction type over current relay

Group II

A. Used on A.C circuits

B. Non Unit Type

C. Air Blast Circuit breakers

D. Oil Circuit breakers

E. Gas operated relay

Choose the correct option from the following:

Options :

P-B; Q-E; R-C; S-A

76439047785. ✓

P-A; Q-B; R-D; S-A

76439047786. ✗

P-B; Q-E; R-D; S-A

76439047787. ✗

P-D; Q-C; R-A; S-B

76439047788. ✗

Question Number : 148 Question Id : 76439011972 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following material is used for making the fuse element to carry small current upto

10A?

Options :

Copper only

76439047789. ✗

Silver only

76439047790. ✗

Copper and silver

76439047791. ✗

An alloy of lead and tin

76439047792. ✓

Question Number : 149 Question Id : 76439011973 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which of the following lightning arrestor is called protector tube?

Options :

Rod gap type

76439047793. ✘

Horn gap type

76439047794. ✘

Valve type

76439047795. ✘

Expulsion type

76439047796. ✓

Question Number : 150 Question Id : 76439011974 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

In percentage differential protection relay, the differential current through the operating coil is 'x' amps and the average current in restraining coil is 'y' amps. The ratio of number of turns of operating coil to restraining coil under balanced conditions is

Options :

$$\frac{y}{x}$$

76439047797. ✓

$$\frac{x}{y}$$

76439047798. ✘

$$\frac{2x}{y}$$

76439047799. ✘

$$\frac{2y}{x}$$

76439047800. ✘

Question Number : 151 Question Id : 76439011975 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Corona loss increases with

Options :

Increase in supply frequency and conductor size

76439047801. ✘

Increase in supply frequency and decrease in conductor size

76439047802. ✔

Decrease in supply frequency and conductor size

76439047803. ✘

Decrease in supply frequency but increase in conductor size

76439047804. ✘

Question Number : 152 Question Id : 76439011976 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

When an alternating current flows through a conductor

Options :

Entire current passes through the core of the conductor

76439047805. ✘

Portion of conductor near the surface carries more current in comparison to the core

76439047806. ✔

Current remains uniformly distributed over the whole cross-section of the conductor

76439047807. ✘

Portion of conductor near the surface carries less current in comparison to the core

76439047808. ✘

Question Number : 153 Question Id : 76439011977 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

In a string of suspension insulators, which of the following statement is correct

Options :

The disc nearest to the conductor has maximum voltage across it

76439047809. ✓

The disc nearest to the cross arm has maximum voltage across it

76439047810. ✘

The middle disc of the insulator has maximum voltage across it

76439047811. ✘

The voltage is distributed equally in the insulator

76439047812. ✘

Question Number : 154 Question Id : 76439011978 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The sag of the conductor of a transmission line is 2.5 m when the span is 250 m. Now if

the height of supporting tower is increased by 25%, the sag will

Options :

Reduce by 25%

76439047813. ✘

Increase by 25%

76439047814. ✘

Reduce by 12.5%

76439047815. ✘

Remain unchanged

76439047816. ✓

Question Number : 155 Question Id : 76439011979 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The most commonly used material for insulator of overhead line is

Options :

Porcelain

76439047817. ✓

Glass

76439047818. ✘

Mica

76439047819. ✘

PVC

76439047820. ✘

Question Number : 156 Question Id : 76439011980 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

High voltage DC transmission is mainly used for

Options :

Bulk power transmission over long distances

76439047821. ✔

Interconnecting two systems with the same nominal frequency

76439047822. ✘

Eliminating reactive power requirement in the operation

76439047823. ✘

Minimizing harmonics at the converter stations

76439047824. ✘

Question Number : 157 Question Id : 76439011981 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The sequence of operation of Isolator, Circuit breaker (C.B) and Earth switch while opening a circuit

Options :

Earth switch opens, Isolator opens, C.B opens

76439047825. ✘

C.B opens, Isolator opens, Earth switch closes

76439047826. ✔

Earth switch closes, Isolator opens, C.B opens

76439047827. ✘

Isolation opens, Earth switch closes, C.B opens

76439047828. ✘

Question Number : 158 Question Id : 76439011982 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Pole mounted substations are normally recommended for transformers up to a maximum capacity of

Options :

25 kVA

76439047829. ✘

250 kVA

76439047830. ✔

1MVA

76439047831. ✘

100MVA

76439047832. ✘

Question Number : 159 Question Id : 76439011983 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Three insulating materials with same maximum working stress and permitivities 2.5, 3.0,4.0 are used in a single core cable. The location of the material with respect to the core of the cable will be

Options :

2.5, 3.0, 4.0

76439047833. ✘

3.0, 2.5, 4.0

76439047834. ✘

4.0, 3.0, 2.5

76439047835. ✔

4.0, 2.5, 3.0

76439047836. ✘

Question Number : 160 Question Id : 76439011984 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Ring main distribution is preferred to a radial system because

Options :

Voltage drop in the feeder is less and supply is more reliable

76439047837. ✓

Voltage drop in the feeder is less and power factor is high

76439047838. ✘

Power factor is high and supply is more reliable

76439047839. ✘

Power factor is high and system is less expensive

76439047840. ✘

Question Number : 161 Question Id : 76439011985 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Match the following

Equipment

Bearings

i) High H.P Electric machines

a) Foot step or Pivot bearings

ii) Table fans

b) Thrust type ball bearings

iii) Ceiling fans

c) Radial type ball bearings

iv) Turbo generation sets with vertical shaft

d) Thrust or Roller bearings

Choose the correct option from the following:

Options :

iv-a iii-b ii-c i-d

76439047841. ✓

i-a ii-b iii-c iv-d

76439047842. ✘

ii-c iii-a i-b iv-d

76439047843. ✘

ii-a iii-b iv-c i-d

76439047844. ✘

Question Number : 162 Question Id : 76439011986 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which of the following is a best example of load equalization

Options :

Squirrelcage Induction motor control

76439047845. ✘

Slipping Induction motor control

76439047846. ✘

Synchronous motor control

76439047847. ✘

Ward Leonard Illigner control

76439047848. ✔

Question Number : 163 Question Id : 76439011987 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Under peak load condition the flywheel gives a part of kinetic energy.

The torque required to be supplied by the motor is

Options :

$$T_M = T_L - T_{FW}$$

76439047849. ✔

$$T_L = T_M - T_{FW}$$

76439047850. ✘

$$T_M = T_{FW} - T_L$$

76439047851. ✘

$$T_{FW} = T_M - T_L$$

76439047852. ✘

Question Number : 164 Question Id : 76439011988 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

_____ motor is preferred in applications where quick reversal of speed is required

Options :

Synchronous Motor

76439047853. ✘

Stepper Motor

76439047854. ✘

DC Motor

76439047855. ✔

Slip ring Induction Motor

76439047856. ✘

Question Number : 165 Question Id : 76439011989 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A 50HP, 440 V, DC shunt motor is braked by plugging. Calculate the value of resistance to be placed in series with the armature circuit to limit initial braking current to 150 A. $R_a=1.3 \Omega$, full load armature current=100 A and full load speed=600 rpm

Options :

5 Ω

76439047857. ✔

6 Ω

76439047858. ✘

3 Ω

76439047859. ✘

8 Ω

76439047860. ✘

Question Number : 166 Question Id : 76439011990 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which braking is not possible in DC series motor?

Options :

Regenerative braking

76439047861. ✔

Dynamic braking

76439047862. ✘

Rheostat braking

76439047863. ✖

Reverse current braking

76439047864. ✖

Question Number : 167 Question Id : 76439011991 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The average speed of a train is independent of

Options :

Distance between stops

76439047865. ✖

Acceleration and braking retardation

76439047866. ✖

Duration of stops

76439047867. ✔

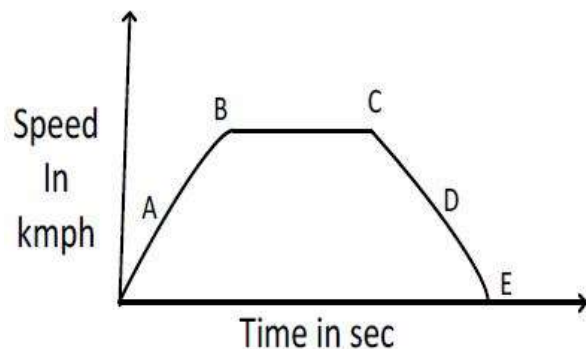
Running time

76439047868. ✖

Question Number : 168 Question Id : 76439011992 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Typical speed-time curve of a train running on main line service is shown in figure. In this

CD represent



Options :

Constant accelerating period

76439047869. ✖

Free-running period

76439047870. ✘

Coasting period

76439047871. ✔

Braking period

76439047872. ✘

Question Number : 169 Question Id : 76439011993 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The typical values of the Specific energy consumption for main line service is

Options :

40-50 W-hr/ton-km

76439047873. ✘

50-60 W-hr/ton-km

76439047874. ✘

20-30 W-hr/ton-km

76439047875. ✔

60-70 W-hr/ton-km

76439047876. ✘

Question Number : 170 Question Id : 76439011994 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A train has a scheduled speed of 30kmPh on a level track. If the distance between the

stations is 1km and stopping time is 20 seconds. β =braking retardation=3kmPhPs,

V_{\max} =25% greater than average speed. Calculate acceleration required to run the

service.

Options :

8.1 KmPhPs

76439047877. ✘

6.4 KmPhPs

76439047878. ✘

1.8 KmPhPs

76439047879. ✓

2.8 KmPhPs

76439047880. ✘

Question Number : 171 Question Id : 76439011995 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which of the following is not a part of the electric distribution network

Options :

Feeder

76439047881. ✘

Distributor

76439047882. ✘

Optical fibre

76439047883. ✓

Service mains

76439047884. ✘

Question Number : 172 Question Id : 76439011996 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which of the following types of wiring is used for purely temporarily installations

Options :

Concealed conduit wiring

76439047885. ✘

Surface conduit wiring

76439047886. ✘

Wood casing -capping wiring

76439047887. ✘

Cleat wiring

76439047888. ✓

Question Number : 173 Question Id : 76439011997 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

In a Distribution Transformer

Options :

76439047889. ✘

The primary winding are star connected and the secondary winding are delta connected

76439047890. ✘ Both primary and secondary windings are delta connected

76439047891. ✔

The primary windings are delta connected and the secondary windings are star connected

76439047892. ✘ Both primary and secondary windings are star connected

Question Number : 174 Question Id : 76439011998 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The function of choke and starter in a tube light circuit is to

Options :

76439047893. ✔ create a high voltage across the tube during starting

76439047894. ✘ Improve resistance of the tube light circuit

76439047895. ✘ Reduce the power consumed by the tube light circuit

76439047896. ✘ Help to draw very high current during starting

Question Number : 175 Question Id : 76439011999 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The generated voltage is transmitted through transmission lines after stepping up the voltage so

that

Options :

76439047897. ✘ The voltage drop in the transmission line is reduced

76439047898. ✔ For the square power transmitted the current flowing through the lines is reduced, there by reducing the transmission losses.

76439047899. ✘ The transmission times are kept far away from the ground level

76439047900. ✘ Large amount power could be transmitted

Question Number : 176 Question Id : 76439012000 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Most of the faults on an overhead system are

Options :

Single line to ground faults

76439047901. ✓

Double line to ground faults

76439047902. ✗

Line to line faults

76439047903. ✗

3 phase faults

76439047904. ✗

Question Number : 177 Question Id : 76439012001 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

When single line to earth fault occurs on an ungrounded neutral system, the voltages of the

healthy phases rise from their normal phase voltage to

Options :

Remains same

76439047905. ✗

Line value

76439047906. ✓

2 times the line value

76439047907. ✗

3 times the line value

76439047908. ✗

Question Number : 178 Question Id : 76439012002 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

When a single line to earth fault occurs in solid grounding system, the phase to earth voltage of

the remaining two healthy phases remain at

Options :

Line voltage

76439047909. ✗

Phase voltage

76439047910. ✓

More than phase voltage

76439047911. ✘

More than line voltage

76439047912. ✘

Question Number : 179 Question Id : 76439012003 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

In equipment grounding, the enclosure is connected to

Options :

Ground wire

76439047913. ✓

Neutral wire

76439047914. ✘

Phase wire

76439047915. ✘

Neutral wire and phase wire

76439047916. ✘

Question Number : 180 Question Id : 76439012004 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

In college laboratories which type of transformer is used

Options :

single phase core type

76439047917. ✘

Single phase shell type

76439047918. ✓

Star/Delta transformer

76439047919. ✘

Star/Star transformer

76439047920. ✘

Question Number : 181 Question Id : 76439012005 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

To make a p-type semiconductor the impurity to be added is _____

Options :

76439047921. ✘ Phosphorous

76439047922. ✔ Indium

76439047923. ✘ Arsenic

76439047924. ✘ Antimony

Question Number : 182 Question Id : 76439012006 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

In Zener diode, the break down voltage is higher for _____ doped diodes

Options :

76439047925. ✔ Lightly

76439047926. ✘ Moderately

76439047927. ✘ Heavily

76439047928. ✘ More heavily

Question Number : 183 Question Id : 76439012007 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

For a Bridge rectifier peak inverse voltage (PIV) is _____ volts

Options :

76439047929. ✘ $-V_m$

76439047930. ✘ 0

76439047931. ✔ V_m

76439047932. ✘ $2V_m$

Question Number : 184 Question Id : 76439012008 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

In Common- Emitter (CE) configuration, the purpose of bypass capacitor across the bypass resistance is to____

Options :

increase emitter current

76439047933. ✘

improve the stability factor

76439047934. ✘

decrease the output signal

76439047935. ✘

increase the output signal

76439047936. ✔

Question Number : 185 Question Id : 76439012009 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Unijunction transistor (UJT) cannot be used as _____

Options :

Amplifier

76439047937. ✔

Saw tooth waveform generator

76439047938. ✘

switch

76439047939. ✘

Multivibrator

76439047940. ✘

Question Number : 186 Question Id : 76439012010 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

In Junction Field Effect Transistor(JFET) at pinch off, the drain current becomes_____

Options :

Zero

76439047941. ✘

One

76439047942. ✘

76439047943. ✓ Constant

Infinite

76439047944. ✘

Question Number : 187 Question Id : 76439012011 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

In an oscillator circuit, the transistor operates in

Options :

76439047945. ✓ Class A

76439047946. ✘ Class B

76439047947. ✘ Class AB

76439047948. ✘ class C

Question Number : 188 Question Id : 76439012012 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The Typical values of h parameters for BJT in CE configuration are

Options :

76439047949. ✘ $h_{ie}=10\text{ k}\Omega$, $h_{fe}=100$, $h_{re}=10\times 10^{-4}$, $h_{oe}=10\times 10^{-6}\text{ s}$

76439047950. ✓ $h_{ie}=1\text{ k}\Omega$, $h_{fe}=100$, $h_{re}=10\times 10^{-4}$, $h_{oe}=10\times 10^{-6}\text{ s}$

76439047951. ✘ $h_{ie}=1\text{ k}\Omega$, $h_{fe}=100$, $h_{re}=10\times 10^4$, $h_{oe}=10\times 10^{-6}\text{ s}$

76439047952. ✘ $h_{ie}=10\text{ k}\Omega$, $h_{fe}=100$, $h_{re}=10\times 10^4$, $h_{oe}=10\times 10^6\text{ s}$

Question Number : 189 Question Id : 76439012013 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A latch can be made by two cross-coupled _____ gates.

Options :

AND

76439047953. ✘

OR

76439047954. ✘

NOR

76439047955. ✔

NOT

76439047956. ✘

Question Number : 190 Question Id : 76439012014 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

The range of values that can be represented by 'b' bits using 2's complement representation

is _____

Options :

-2^{b-1} to 2^{b-1}

76439047957. ✘

$1-2^{b-1}$ to $2^{b-1}-1$

76439047958. ✘

$-1-2^{b-1}$ to $2^{b-1}-1$

76439047959. ✘

-2^{b-1} to $2^{b-1}-1$

76439047960. ✔

Question Number : 191 Question Id : 76439012015 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

DIAC is _____ directional device

Options :

Uni

76439047961. ✘

Tri

76439047962. ✘

Bi

76439047963. ✔

Non

76439047964. ✘

Question Number : 192 Question Id : 76439012016 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Match the following devices with their maximum frequency of operation

- | | |
|-------------------------|-----------|
| i) Phase controlled SCR | a) 100kHz |
| ii) IGBT | b) 25kHz |
| iii) BJT | c) 60Hz |
| iv) GTO | d) 10kHz |

Choose the correct option from the following:

Options :

76439047965. ✘ i-c, ii-a, iii-d, iv-b

76439047966. ✔ i-c, ii-a, iii-b, iv-d

76439047967. ✘ i-a, ii-c, iii-d, iv-b

76439047968. ✘ i-a, ii-c, iii-b, iv-d

Question Number : 193 Question Id : 76439012017 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Which of the following is/are transistor/s?

Options :

76439047969. ✘ BJT

76439047970. ✘ MOSFET

76439047971. ✔ BJT & MOSFET

76439047972. ✘ SCR

Question Number : 194 Question Id : 76439012018 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is

Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

The input frequency of a cyclo converter is 50 Hz. What can be its expected output frequency?

Options :

76439047973. ✘ 40 Hz

76439047974. ✘ 30 Hz

76439047975. ✘ 10.5 Hz

76439047976. ✔ 6.25 Hz

Question Number : 195 Question Id : 76439012019 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is
Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

A single phase full converter is feeding a load which draws a constant load current of 20 A what
is the average thyristor current?

Options :

76439047977. ✘ 20 A

76439047978. ✔ 10 A

76439047979. ✘ $20\sqrt{2}$ A

76439047980. ✘ $\frac{20}{\sqrt{2}}$ A

Question Number : 196 Question Id : 76439012020 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is
Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Consider a single-phase full Bridge voltage source inverter with thyristor switches. What type of
load commutation circuit is not needed for thyristors?

Options :

76439047981. ✘ R-load

R-L load

76439047982. ✖

RLC over damped

76439047983. ✖

RLC under damped

76439047984. ✔

Question Number : 197 Question Id : 76439012021 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Match the following converters with corresponding best suitable applications

- | | |
|---------------------------------|-----------------------------------|
| i) cyclo converter | a) Uninterruptable power supplies |
| ii) Inverter | b) DC traction motors |
| iii) Phase controlled rectifier | c) Solar energy conversion |
| iv) chopper | d) Megawatt power AC drives |

Choose the correct option from the following:

Options :

i-d, ii-a, iii-c, iv-b

76439047985. ✖

i-a, ii-d, iii-c, iv-b

76439047986. ✖

i-d, ii-a, iii-b, iv-c

76439047987. ✔

i-a, ii-b, iii-c, iv-d

76439047988. ✖

Question Number : 198 Question Id : 76439012022 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

Statement I: Inverters are used to control the speed of AC drivers

Statement II: Total harmonic distortion produced by square wave inverter is zero.

Choose the correct option from the following:

Options :

Both Statements I and II are individually true and statement II is the correct explanation of Statement I

76439047989. ✘

Both statements I and II are individually true but statement II is not the correct explanation of Statement I

76439047990. ✘

Statement I is true but statement II is false

76439047991. ✔

Statement I is false but statement II is true.

76439047992. ✘

Question Number : 199 Question Id : 76439012023 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A star connected squirrel cage induction motor has the following ratings: 400V , 50 Hz, 4-pole, 1370 rpm. Motor is controlled by a voltage source inverter at constant v/f ratio. What is the value of frequency for a speed of 1070 rpm at full load torque?

Options :

50Hz

76439047993. ✘

30 Hz

76439047994. ✘

40 Hz

76439047995. ✔

60 Hz

76439047996. ✘

Question Number : 200 Question Id : 76439012024 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical Correct Marks : 1 Wrong Marks : 0

A three phase induction motor is driving a load whose torque Vs speed characteristics is a parabola. The best suitable speed control technique for this arrangement is _____

Options :

76439047997. ✓ Voltage control

76439047998. ✗ Frequency control

76439047999. ✗ V/f control

76439048000. ✗ Rotor resistance control