TS PGECET QUESTION PAPER

2023



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Notations :

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

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

Question Paper Name :	Electrical Engineering 29th May 2023 Shift2
Subject Name :	Electrical Engineering
Creation Date :	2023-05-29 18:29:07
Duration :	120
Total Marks :	120
Display Marks:	No
Share Answer Key With Delivery Engine :	Yes
Actual Answer Key :	Yes
Calculator :	None
Magnifying Glass Required? :	No
Ruler Required? :	No
Eraser Required? :	No
Scratch Pad Required? :	No
Rough Sketch/Notepad Required? :	No
Protractor Required? :	No
Show Watermark on Console? :	Yes
Highlighter :	No
Auto Save on Console?	Yes
Change Font Color :	No
Change Background Color :	No
Change Theme :	No
Help Button :	No

Show Reports :	No
Show Progress Bar :	No

Electrical Engineering

Group Number :	1
Group Id :	28393660
Group Maximum Duration :	0
Group Minimum Duration :	120
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	120
Is this Group for Examiner? :	No
Examiner permission :	Cant View
Show Progress Bar? :	No

Mathematics

Section Id :	283936170
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	10
Number of Questions to be attempted :	10
Section Marks :	10
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1

Sub-Section Id : 283936170

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 1 Question Id : 2839368561 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The value of k for which the system of equations $2x+y+2z=0$, $x+y+3z=0$ and $4x+3y+kz=0$ has a non-zero solution is

Options :

1. ✖ -8

2. ✖ 4

3. ✖ 6

4. ✔ 8

Question Number : 2 Question Id : 2839368562 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is an eigenvalue of $A=\begin{pmatrix}1 & 4\\ 3 & 2\end{pmatrix}$ corresponding to the eigenvector $\begin{pmatrix}1\\ 1\end{pmatrix}$?

Options :

1. ✖ -2

2. ✔ 5

3. ✖ 2

4. ✖ 1

Question Number : 3 Question Id : 2839368563 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The value of the constant c of Lagrange's mean value theorem for the function $f(x) = \log_e x$ in $[1, e]$ is

Options :

1. ✔ $e-1$

2. ✖ $\frac{e-1}{2}$

3. ✖ $\frac{e}{2}$

4. ✖ $\frac{e}{3}$

Question Number : 4 Question Id : 2839368564 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✖ $\frac{1}{2}$

2. ✔ $-\frac{1}{2}$

3. ✖ 1

4. ✖ -1

Question Number : 5 Question Id : 2839368565 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The equation of the second order differential equation whose two linearly independent solutions are e^{-x} and e^{2x} is

Options :

1. ✖ $y'' - y' - 2 = 0$

2. ✖ $y'' - 2y' = 0$

3. ✖ $y'' + y' + 2y = 0$

4. ✔ $y'' - y' - 2y = 0$

Question Number : 6 Question Id : 2839368566 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

If $u(x,y)$ is the solution of $u_x + u_y = 0$ satisfying $u(x,0) = 5e^{-2x}$, then $u(1,1) =$

Options :

1. ✔ 5

2. ✖ 0

3. ✖ 10

4. ✖ $5e^{-2}$

Question Number : 7 Question Id : 2839368567 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$$\int_{|z|=1} \sin z \, dz =$$

Options :

1. ✔ 0

2. ✖ $2\pi i$

3. ✖ πi

4. ✖ $\frac{\pi i}{2}$

Question Number : 8 Question Id : 2839368568 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The Z-transform of $\frac{e^{-n}}{n!}$ is

Options :

1. ✔ $e^{\frac{1}{ez}}$

2. ✖ $e^{\frac{e}{z}}$

3. ✖ e^{ez}

4. ✖ $e^{\frac{1}{z}}$

Question Number : 9 Question Id : 2839368569 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A continuous random variable X has the p.d.f. $f(x)=\frac{1}{2}e^{-|x|}, -\infty < x < \infty.$

The mean of X is

Options :

1. ✖ 2

2. ✔ 0

3.

✖ 4

4. ✖ 5

Question Number : 10 Question Id : 2839368570 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The Newton-Raphson iterative formula to find the square root of 20 is

Options :

1. ✔ $x_{n+1}=\frac{1}{2}\left(x_n+\frac{20}{x_n}\right)$

2. ✖ $x_{n+1}=x_n+\frac{20}{x_n}$

3. ✖ $x_{n+1}=\frac{1}{2}\left(x_n-\frac{20}{x_n}\right)$

4. ✖ $x_{n+1}=x_n-\frac{20}{x_n}$

Electrical Engineering

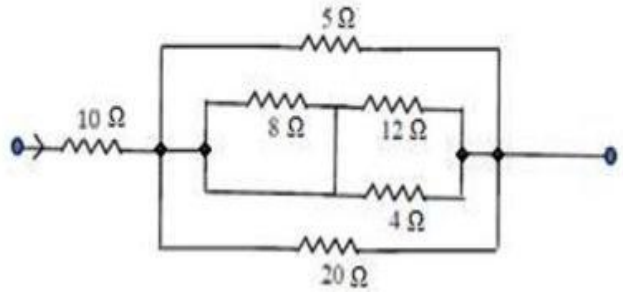
Section Id :	283936171
Section Number :	2
Section type :	Online

Mandatory or Optional :	Mandatory
Number of Questions :	110
Number of Questions to be attempted :	110
Section Marks :	110
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	283936171
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 11 Question Id : 2839368571 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In the following circuit the current in 5 Ω resistor is 15A. Current in 12 Ω resistor will be (in Amps)



Options :

1. ✔ 6.25

2. ✖ 1.7

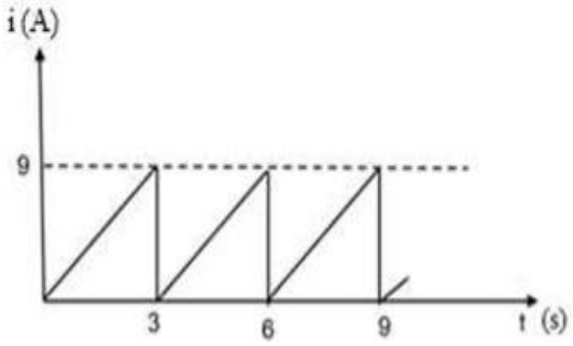
3. ✖ 6.82

4. ✖ 3.75

Question Number : 12 Question Id : 2839368572 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The current waveform in a pure resistor of 10 Ω is shown in below figure. The power dissipated in resistor is



Options :

1. ✖ 90 watts

2. ✖ 180 watts

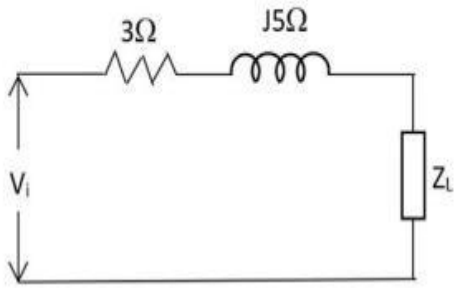
3. ✔ 270 watts

4. ✖ 350 watts

Question Number : 13 Question Id : 2839368573 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

For what value of Z_L, power delivered to Z_L will be maximum, if Z_L is a pure resistance.



Options :

1. ✖ $(3.58)\ \Omega$

2. ✖ $(5.30)\ \Omega$

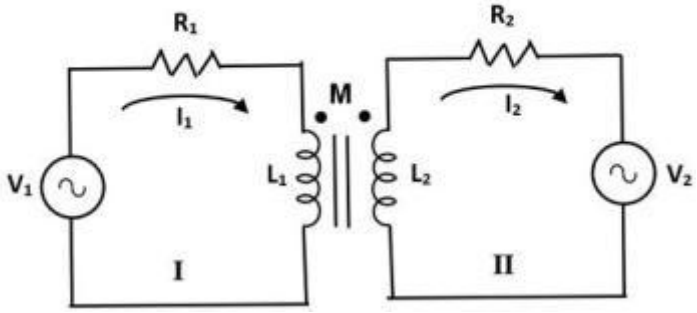
3. ✔ $(5.83)\ \Omega$

4. ✖ $(8.53)\ \Omega$

Question Number : 14 Question Id : 2839368574 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In mesh I, the voltage equation will be



Options :

1. ✖ $V_1 = R_1 I_1 + j\omega(L_1 + M) I_1$

2. ✖ $V_1 = (R_1 + j\omega L_1) I_1 + j\omega M I_2$

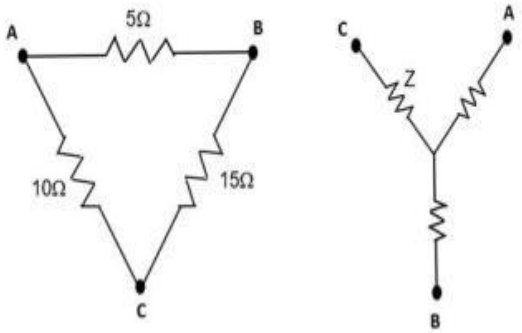
3. ✔ $V_1 = (R_1 + j\omega L_1) I_1 - j\omega M I_2$

4. ✖ $V_1 = R_1 I_1 + j\omega(M - L_1) I_1$

Question Number : 15 Question Id : 2839368575 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The Δ- connected circuit shown in figure is transformed into star equivalent circuit.
The value of Z shown in star equivalent (in Ω) is



Options :

1. ✖ 5/3

2. ✔ 5

3. ✖ 5/2

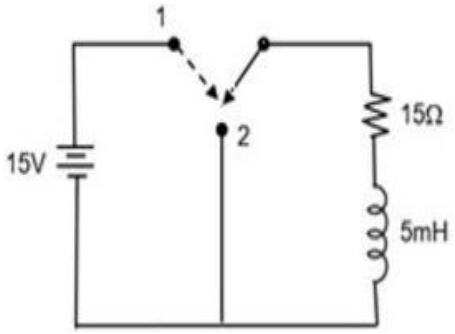
4. ✖ 5/4

Question Number : 16 Question Id : 2839368576 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

Switch was in position 1 for considerable time. If now switch is put in position 2, $i(0^+)$ current in circuit will be



Options :

1. ✖ $1-e^{-3\times10^{3}t}\,\mathrm{A}$

2. ✖ $1-e^{-3\times10^{-3}t}\,\mathrm{A}$

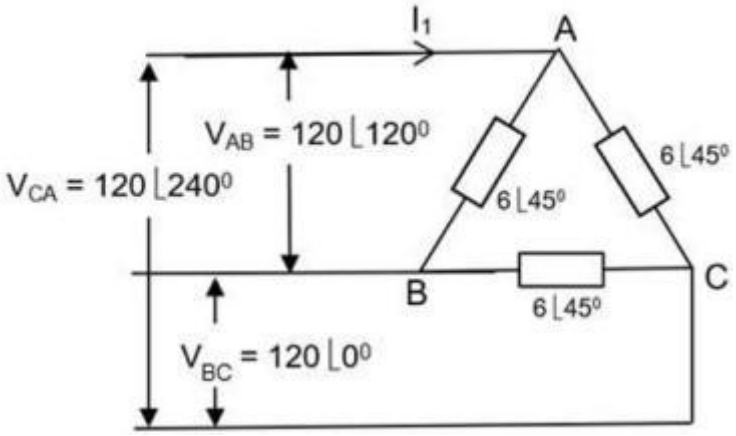
3. ✖ $e^{-3\times10^{-3}t}\,\mathrm{A}$

4. ✔ $e^{-3\times10^{3}t}\,\mathrm{A}$

Question Number : 17 Question Id : 2839368577 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Current I_1 in the circuit will be



Options :

1. ✖ $20 \angle 0^{\circ}$ Amp

2. ✔ $34.64 \angle 45^{\circ}$ Amp

3. ✖ $34.64 \angle 60^{\circ}$ Amp

4. ✖ $20 \angle 45^{\circ}$ Amp

Question Number : 18 Question Id : 2839368578 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In parallel resonant circuit, at resonance the circuit impedance is

Options :

1. ✖ minimum

2. ✔ maximum

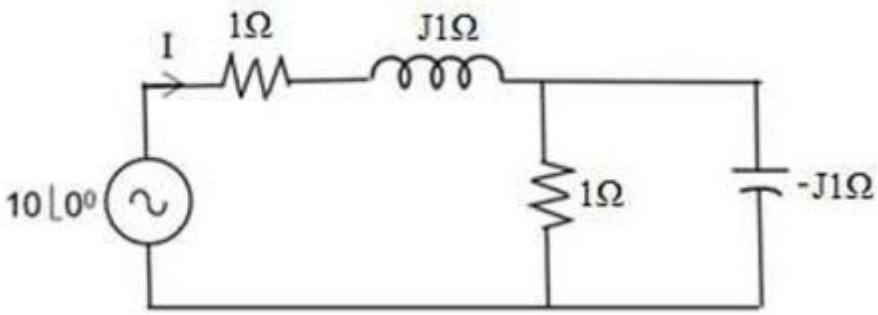
3. ✖ equal to difference of inductive & capacitive reactances

4. ✖ equal to difference of inductive and capacitive susceptances

Question Number : 19 Question Id : 2839368579 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The value of current I in the circuit shown below is



Options :

1. ✔ $(6-j2)$ A

2. ✖ $(-6+j2)$ A

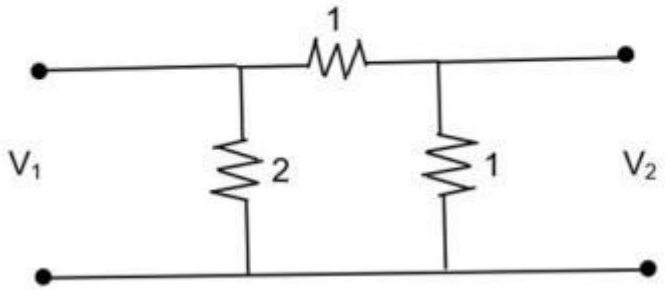
3. ✖ $(6+j2)$ A

4. ✖ $(-6+j2)$ A

Question Number : 20 Question Id : 2839368580 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Transfer Impedance Z_{21} of the following two-port network is



Options :

1. ✖ $1\ \Omega$

2. ✔ $\frac{1}{2}\Omega$

3. ✖ $\frac{1}{4}\Omega$

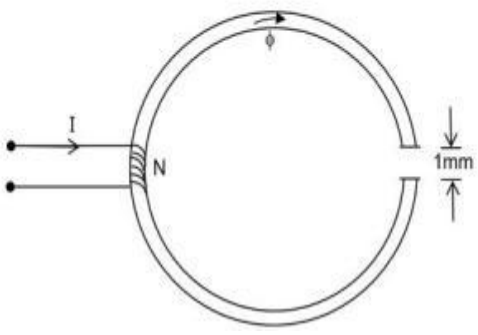
4. ✖ $2\ \Omega$

Question Number : 21 Question Id : 2839368581 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In the figure shown, the cross-section of the core is circular and has radius 1.25 mm.

The mean length of the core is 30 cm. If the flux in the core is 0.6×10^{-5} Wb, then H in air-gap is



Options :

1. ✔ $\frac{24}{25}\ \frac{1}{\pi^2}\ \frac{1}{10^{-7}}$

2. ✖ $\frac{25}{24}\ \frac{1}{\pi^2}\ \frac{1}{10^{-7}}$

3. ✖ $\frac{15}{16}\ \frac{1}{\pi^2}\ \frac{1}{10^{-7}}$

4. ✖ $\frac{16}{15}\ \frac{1}{\pi^2}\ \frac{1}{10^{-7}}$

Question Number : 22 Question Id : 2839368582 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If 'b' is number of branches and 'n' is number of nodes of a network then number of independent loops are

Options :

1. ✖ n-1

2. ✖ b-n

3. ✖ n+1

4. ✔ b-n+1

Question Number : 23 Question Id : 2839368583 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The cut-set schedule gives the relation between

Options :

1. ✖ branch currents and link currents

2. ✔ branch voltage and tree branch voltage

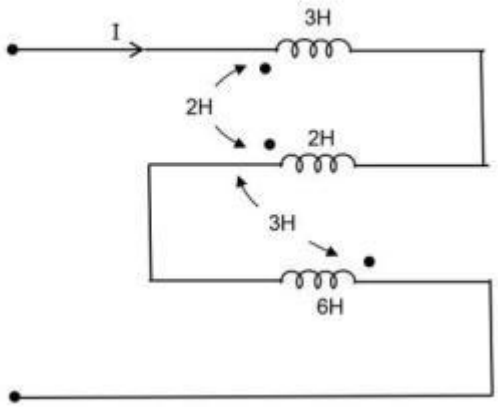
3. ✖ branch voltages and link voltages

4. ✖ branch current and tree currents

Question Number : 24 Question Id : 2839368584 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Calculate the effective inductance of the circuit shown in figure below



Options :

1. ✖ 17

2. ✖ 7

3. ✔ 13

4. ✖ 15

Question Number : 25 Question Id : 2839368585 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The h parameters h_{11} and h_{12} are obtained

Options :

1. ✔ by short circuiting output terminals

2. ✖ by opening input terminals

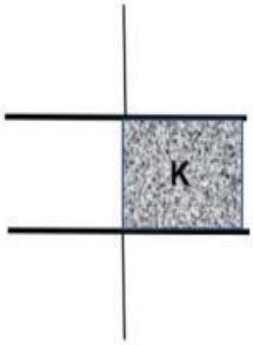
3. ✖ by short circuiting input terminals

4. ✖ by opening output terminals

Question Number : 26 Question Id : 2839368586 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A dielectric is placed in between two parallel plates of a capacitor as shown in figure below. The dielectric constant of the dielectric medium is K. If the initial capacitance without dielectric is C, then the new capacitance will be



Options :

1. ✖ KC

2. ✖ (K+1)C

3. ✖ KC / 2

4. ✔ (K+1)C / 2

Question Number : 27 Question Id : 2839368587 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Two charges of 27×10^{-12} coloumbs are kept at the end of the hypotenuse of a isosceles right angle triangle. If the length of the other two sides of triangle is 9 cm, then the electric field intensity at the third corner of the triangle will be

Options :

1. ✖ 30 V/m

2. ✖ 50 V/m

3. ✖ $50\sqrt{2}$ V/m

4. ✔ $30\sqrt{2}$ V/m

Question Number : 28 Question Id : 2839368588 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Force per unit length, between two, one ampere current carrying conductors separated at a distance of 1m in free space is equal to

Options :

1. ✔ 2×10^{-7} N / m

2. ✖ 4×10^{-7} N / m

3. ✖ $2\pi\times10^{-7}$ N / m

4. ✖ $4\pi\times10^{-7}$ N / m

Question Number : 29 Question Id : 2839368589 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

When a charge is given to a conductor

Options :

1. ✖ it stays where it was placed

2. ✔ it distributes uniformly all over the surface only

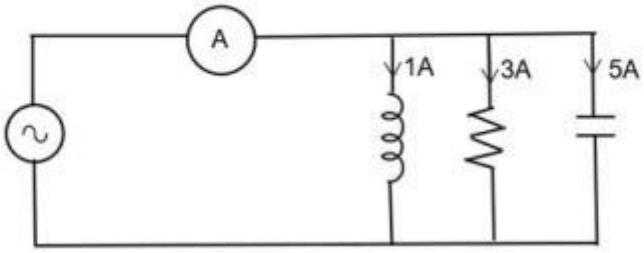
3. ✖ it distributes uniformly all over the volume

4. ✖ it distributes on the surface, inversely proportional to the radius of curvature

Question Number : 30 Question Id : 2839368590 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The current read by the ammeter A in the AC circuit shown below, is



Options :

1. ✖ 9A

2. ✔ 5A

3. ✖ 3A

4. ✖ 1A

Question Number : 31 Question Id : 2839368591 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a 2-pole d.c machine brushes are moved 4° electrically from GNA. The mechanical angle through which brushes have been shifted is

Options :

1. ✖ 2°

2. ✔ 4°

3. ✖ 8°

4. ✖ 0°

Question Number : 32 Question Id : 2839368592 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Identify the correct option relating to shift in MNA due to armature reaction in a dc machine

Options :

1. ✔ shift in MNA is in the same / opposite direction of rotation in dc generator / motor respectively

2. ✖ shift in MNA is in same direction of rotation both in dc generator and motor

3. ✖ shift in MNA is in opposite direction of rotation both in dc generator and motor

4. ✖ shift in MNA is in the same / opposite direction of rotation in dc motor / generator respectively

Question Number : 33 Question Id : 2839368593 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Interpole in dc machines are used

Options :

1. ✖ to neutralize the reactance voltage only

2. ✖ to neutralize the cross magnetizing effect of armature reaction only

3. ✔ to neutralize the reactance voltage and cross magnetizing effect of armature reaction

4. ✖ to have mechanical balance

Question Number : 34 Question Id : 2839368594 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A dc shunt motor runs at 500 rpm on a 200V supply its armature resistance is 0.5 Ω and the current taken is 30A in addition to field current. What resistance must be placed approximately in series with armature circuit to reduce speed to 300 rpm, when the current in armature remaining same?

Options :

1. ✖ 4.25 Ω

2. ✖ 4.0 Ω

3. ✖ 6.75 Ω

4. ✔ 2.5 Ω

Question Number : 35 Question Id : 2839368595 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A 4 pole, 1200 rpm, Lap wound, d.c generator has 1520 conductors. If the flux per pole is 0.01 wb, then the emf of generator is

Options :

1. ✖ 608 V

2. ✔ 304 V

3. ✖ 152 V

4. ✖ 76 V

Question Number : 36 Question Id : 2839368596 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A 3-ϕ Induction motor has equal starting Torque as that of full load Torque. What will be its starting current (I_{st}) in terms of full load current(I_{fL}), if it has full load slip of 4%

Options :

1. ✖ $I_{st} = I_{fL}$

2. ✖ $I_{st} = 2\ I_{fL}$

3. ✖ $I_{st} = 4\ I_{fL}$

4. ✔ $I_{st} = 5\ I_{fL}$

Question Number : 37 Question Id : 2839368597 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In double cage squirrel cage induction motor, the outer cage in relative to inner cage, has

Options :

1. ✖ high resistance and high reactance

2. ✖ low resistance and low reactance

3. ✔ high resistance and low reactance

4. ✖ low resistance and high reactance

Question Number : 38 Question Id : 2839368598 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Crawling of 3 – phase induction motor takes place due to presence of

Options :

1. ✖ 3^{rd} harmonic

2. ✖ 5^{th} harmonic

3. ✔ 7^{th} harmonic

4. ✖ 11^{th} harmonic

Question Number : 39 Question Id : 2839368599 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In 3- ϕ induction motor, Torque (in stable operation region) is

Options :

1. ✖ inversely proportional to slip.

2. ✔ directly proportional to slip

3. ✖ proportional to square root of slip

4. ✖ proportional to square of the slip

Question Number : 40 Question Id : 2839368600 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

During starting the effect of adding external resistance in the rotor circuit of a 3-phase slip ring Induction motor(SRIM) is to

Options :

1. ✖ Increase the starting torque

2. ✖ Reduce the maximum torque

3. ✔ Improve the power factor at starting

4. ✖ Reduce the starting current

Question Number : 41 Question Id : 2839368601 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A 200 / 100V, 50 Hz, 1 - ϕ transformer is to be excited at 40 Hz from 100 V side. For the excitation current to remain the same, the applied voltage should be

Options :

1. ✖ 160 V

2. ✖ 240 V

3. ✖ 120 V

4. ✔ 80 V

Question Number : 42 Question Id : 2839368602 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The efficiency of a transformer at full-load p.f of 0.85 lag is 95%. Its efficiency at full-load, 0.85 p.f lead will be

Options :

1. ✖ less than 95%

2. ✖ more than 95%

3. ✔ 95%

4. ✖ 100%

Question Number : 43 Question Id : 2839368603 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Flux in the transformer core

Options :

1. ✖ increases with load current

2. ✖ increases with square of the load current

3. ✖ decreases with load current

4. ✔ remain practically constant

Question Number : 44 Question Id : 2839368604 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

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

Correct Marks : 1 Wrong Marks : 0

In distribution transformer from design perspective

Options :

1. ✖ keeping lower copper losses is more important

2. ✔ keeping lower core losses is more important

3. ✖ no special core is taken

4. ✖ core losses can be high

Question Number : 45 Question Id : 2839368605 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The phase relationship between primary and secondary voltage of a single-phase transformer on no – load is

Options :

1. ✖ 90° out of phase

2. ✔ 180° out of phase

3. ✖ same phase

4. ✖ 30° leading phase

Question Number : 46 Question Id : 2839368606 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

When synchronous motor is operating at under excited, its power factor is

Options :

1. ✔ lagging

2. ✖ leading

3. ✖ unity

4. ✖ it does not depend on excitation

Question Number : 47 Question Id : 2839368607 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A 6 pole synchronous motor having 10 Ω armature impedance (resistance part being neglected) runs on 2000 volts. If induced voltage in the machine is 1600 volts, then maximum power developed will be

Options :

1. ✖ 0.06 MW

2. ✔ 0.32 MW

3. ✖ 0.20 MW

4. ✖ 3.2 MW

Question Number : 48 Question Id : 2839368608 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Synchronous motor speed is controlled by varying

Options :

1. ✖ field excitation only

2. ✖ supply voltage only

3. ✔ supply frequency only

4. ✖ both supply voltage and frequency

Question Number : 49 Question Id : 2839368609 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a 3-ϕ synchronous generator, the induce e.m.f phasor

Options :

1. ✖ leads the flux phasor by 90°

2. ✖ is in phase with the flux phasor

3. ✔ lags behind the flux phasor by 90°

4. ✖ is in phase opposition to the flux phase

Question Number : 50 Question Id : 2839368610 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

An inverted V-curve of a synchronous motor is the plot drawn between the variation of

Options :

1. ✔ field current and power factor at constant load

2. ✖ field current and load current at constant supply voltage

3. ✖ field current and induced emf

4. ✖ power factor and load current

Question Number : 51 Question Id : 2839368611 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Transposition of overhead transmission lines is done to

Options :

1. ✔ reduce the interference between lines

2. ✖ save length of line conductor

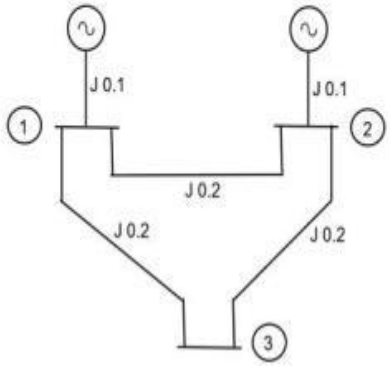
3. ✖ reduce the effects of surge voltages induced on the line

4. ✖ reduce the capacitive effect on the line

Question Number : 52 Question Id : 2839368612 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A sample power system network is shown in figure below. The values marked on the figure are per unit reactances. The value of Y_{22} of the Bus admittance matrix is



Options :

1. ✖ j 0.5 ʊ

2. ✖ j 0.4 ʊ

3. ✖ -j 10 ʊ

4. ✔ -j 20 ʊ

Question Number : 53 Question Id : 2839368613 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

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

Correct Marks : 1 Wrong Marks : 0

A 500 MVA, 11KV synchronous generator has 0.2 p.u. synchronous reactance. The p.u. synchronous reactance on the base value of 100 MVA and 22 KV is

Options :

1. ✖ 0.16

2. ✖ 0.10

3. ✔ 0.01

4. ✖ 0.25

Question Number : 54 Question Id : 2839368614 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If a power system network consists of 'm' generator buses and 'n' load buses, then the dimension of Jacobian matrix of a Newton Raphson Load Flow in polar form is

Options :

1. ✔ (m+2n-1) x (m+2n-1)

2. ✖ (m+2n) x (m+2n)

3. ✖ (m+n) x (m+n)

4. ✖ (m+n-1) x (m+n-1)

Question Number : 55 Question Id : 2839368615 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Given a Nodal impedance matrix Z_{BUS} of a power system network, then the Thevenin's equivalent impedance seen between node i and j is given by

Options :

1. ✗ $Z_{ii} - Z_{jj}$

2. ✗ $Z_{ii} + Z_{jj}$

3. ✗ $Z_{ii} + Z_{jj} + 2Z_{ij}$

4. ✓ $Z_{ii} + Z_{jj} - 2Z_{ij}$

Question Number : 56 Question Id : 2839368616 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The transient stability of the power system can be effectively improved by

Options :

1. ✗ excitation control

2. ✓ high speed circuit breaker

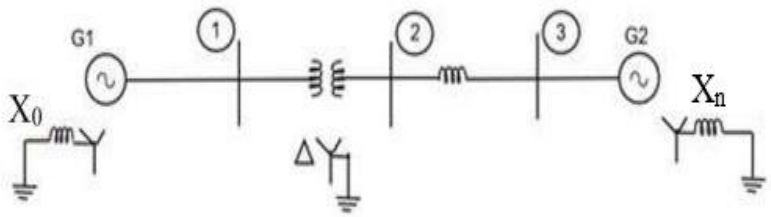
3. ✗ increasing the turbine valve opening

4. ✖ phase shifting transformers

Question Number : 57 Question Id : 2839368617 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

For the system shown in figure, if a LG fault occurs at node 3, then Thevenin's equivalent impedance of the zero sequence network seen between node 3 to reference is



Generators G1 & G2 : $X_0 = 0.1$ p.u., $X_n = 0.05$ p.u.
Transformer : $X_0 = 0.12$ p.u.
Line : $X_0 = 0.63$ p.u.

Options :

1. ✖ j0.1250

2. ✔ j0.1875

3. ✖ j0.1275

4. ✖ j0.1800

Question Number : 58 Question Id : 2839368618 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In order to have a lower cost of electricity generation

Options :

1. ✖ the load factor and diversity factor should be low

2. ✖ the load factor should be low but diversity factor should be high

3. ✖ the load factor should be high but diversity factor should be low

4. ✔ the load factor and diversity factor should be high

Question Number : 59 Question Id : 2839368619 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If the inductance and capacitance of a power system network upto a circuit breaker location are 1H and 0.01μF respectively, the value of the shunt resistor across the circuit breaker required for critical damping of the restriking voltage is

Options :

1. ✖ $100\ \Omega$

2. ✖ $10^4\ \Omega$

3. ✔ $50\ \Omega$

4. ✖ $25\ \Omega$

Question Number : 60 Question Id : 2839368620 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

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

Correct Marks : 1 Wrong Marks : 0

In a system, there are two generators operating in parallel. One generator of rating 250 MVA has an inertia-constant of 5 MJ/MVA, while the other generator of 150 MVA has an inertia constant of 4 MJ/MVA. The inertia constant of the combined system on 100 MVA common base is

Options :

1. ✔ 18.5 MJ/MVA

2. ✖ 21.0 MJ/MVA

3. ✖ 15.0 MJ/MVA

4. ✖ 12.5 MJ/MVA

Question Number : 61 Question Id : 2839368621 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Reactance relay is normally preferred for protection against

Options :

1. ✖ phase faults only

2. ✔ earth faults only

3. ✖ open circuit faults only

4. ✖ both phase & earth faults

Question Number : 62 Question Id : 2839368622 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The line trap unit employed in carrier current relaying offers

Options :

1. ✖ High impedance to 50 Hz power frequency signals

2. ✖ Low impedance to carrier frequency signals

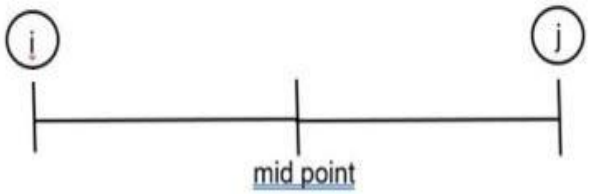
3. ✔ High impedance to carrier frequency signals

4. ✖ Low impedance to 50 Hz power frequency signals

Question Number : 63 Question Id : 2839368623 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If 'P' is the maximum power transfer capacity of the line connected between two nodes i and j, then what will be its maximum power transfer capacity, under mid-point shunt compensation maintaining 1.0 p.u voltage.



Options :

1. ✖ P

2. ✖ 3P / 2

3. ✔ 2P

4. ✖ 4P

Question Number : 64 Question Id : 2839368624 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Steady state stability of a power system is improved by

Options :

1. ✖ reducing fault clearing time

2. ✔ using double circuit line instead of single circuit line

3. ✖ decreasing generator inertia

4. ✖ maintaining high spinning reserve

Question Number : 65 Question Id : 2839368625 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The charging reactance of 50km length of line is 1000 Ω. The charging reactance for 100km length of line will be

Options :

1. ✖ 1000 Ω

2. ✔ 500 Ω

3. ✖ 250 Ω

4. ✖ 750 Ω

Question Number : 66 Question Id : 2839368626 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Equal area criterion gives the information regarding

Options :

1. ✖ Stability region

2. ✖ Relative stability

3. ✔ Absolute stability

4. ✖ Swing curves

Question Number : 67 Question Id : 2839368627 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In the case of suspension type insulators, the string efficiency can be improved by

1. using a longer cross arms on the transmission towers.
2. using a guard sing
3. grading the insulator discs
4. reducing the cross-arms length

Options :

1. ✔ 1, 2 and 3 are correct

2. ✖ 2, 3 and 4 are correct

3. ✖ 2 and 4 are correct

4. ✖ 1 and 3 are correct

Question Number : 68 Question Id : 2839368628 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Consider the following statements

1. by using bundled conductors in an overhead line, the corona loss is reduced
2. by using bundled conductors, the inductance of transmission line increases and capacitance reduces
3. corona loss causes interference in adjoining communication lines

Which of these statements are correct?

Options :

1. ✖ 1 and 2

2. ✖ 2 and 3

3. ✔ 1 and 3

4. ✖ 1, 2 and 3

Question Number : 69 Question Id : 2839368629 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A shunt fault is characterized by

Options :

1. ✖ increase in current, frequency and power factor

2. ✖ increase in current, but reduction in frequency & power factor

3. ✔ increase in current and frequency, but reduction of power factor

4. ✖ increase in current and frequency and does not have any effect on power factor

Question Number : 70 Question Id : 2839368630 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A 3-phase Star/Delta transformer rated for 11 KV / 6.6 KV and Current Transformer on the low voltage side has a ratio of 300/5. The ratio of the current transformer on the high voltage side is

Options :

1. ✖ 500 : 5

2. ✖ $180 : 5$

3. ✖ $500 : \frac{5}{\sqrt{3}}$

4. ✔ $180 : \frac{5}{\sqrt{3}}$

Question Number : 71 Question Id : 2839368631 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If poles of a system are on the jω axis, the system is

Options :

1. ✖ stable

2. ✖ unstable

3. ✔ marginally stable

4. ✖ Stability of the system does not depend on pole placement

Question Number : 72 Question Id : 2839368632 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Roots of the characteristic equation are

Options :

1. ✖ poles of the open loop system

2. ✔ poles of the closed loop system

3. ✖ zeros of the open loop system

4. ✖ zeros of the closed loop system

Question Number : 73 Question Id : 2839368633 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The Routh-Hartwiz table is given below. The number of roots in right half of s-plane are

S^4	1	5	6
S^3	2	2	0
S^2	4	6	0
S^1	-1	0	
S^0	6		

Options :

1. ✖ 1

2. ✔ 2

3. ✖ Zero

4. ✖ 3

Question Number : 74 Question Id : 2839368634 Question Type : MCQ Option Shuffling : Yes

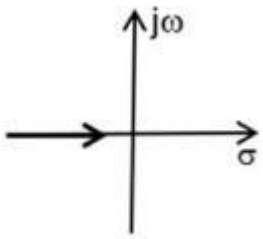
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Correct Marks : 1 Wrong Marks : 0

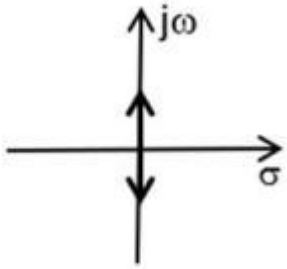
If $G(s)\,H(s) = K / s^2$ then root locus will be

Options :

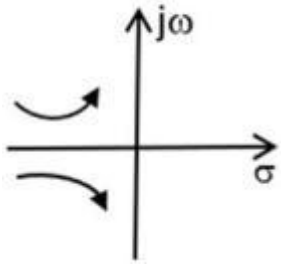
1. ✖



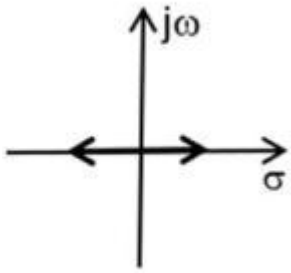
2. ✔



3. ✖



4. ✖



Question Number : 75 Question Id : 2839368635 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If the number of poles and zeros are 'n' and 'm' respectively and n>m, then the number of root loci are

Options :

1. ✖ n-m

2. ✖ m-n

3. ✖ m

4. ✔ n

Question Number : 76 Question Id : 2839368636 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If a unit feedback control system whose open loop transfer function

$G(s) = \frac{100}{s(0.1s+1)}$ is subjected to unit ramp input, the steady state error will be

Options :

1. ✖ ∞

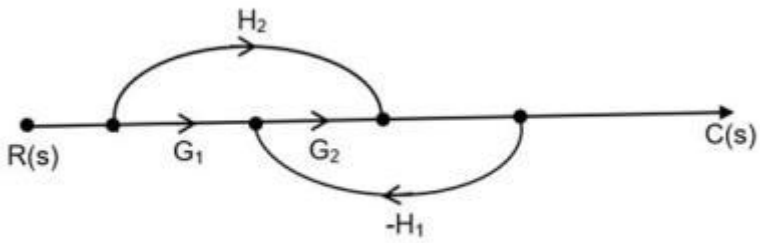
2. ✖ 1

3. ✔ 0.01

4. ✖ 0

Question Number : 77 Question Id : 2839368637 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0



$\frac{c(s)}{R(s)}$ for the system shown in figure is

Options :

1. ✖ $\frac{G_1G_2}{1+H_1H_2G_2}$

2. ✖ $\frac{G_1G_2+H_2}{1+H_1H_2G_2}$

3. ✔ $\frac{G_1G_2+H_2}{1+H_1G_2}$

4. ✖ $\frac{H_2+G_1G_2}{1-H_1G_2}$

Question Number : 78 Question Id : 2839368638 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The value of k, where root locus cut the jω axis in plotting root locus is calculated by

Options :

1. ✖ taking dk / ds = 0

2. ✖ where the first asymptote cut the jω axis

3. ✔ Route-Hurtwiz method

4. ✖ Bode Plot

Question Number : 79 Question Id : 2839368639 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Open loop transfer function given is G(S)H(S) = $\frac{K}{s^2(Ts+1)}$, then the system is

Options :

1. ✖ stable

2. ✔ unstable

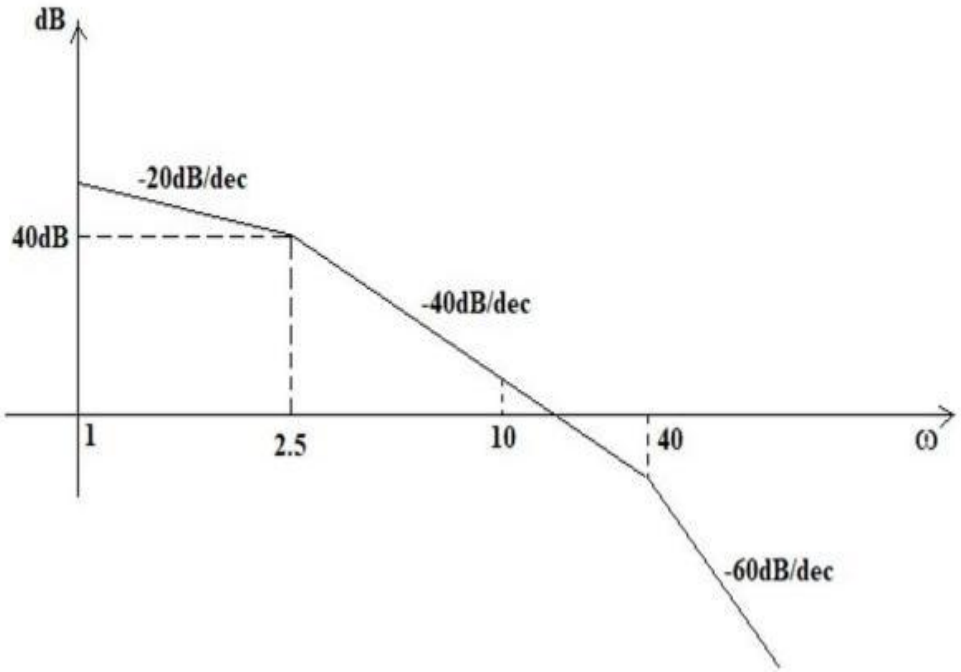
3. ✖ marginally stable

4. ✖ conditionally stable

Question Number : 80 Question Id : 2839368640 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The Bode plot for open loop transfer function of the system is given in the figure shown below. The transfer function of the system is



Options :

1. ✖ $\frac{50}{s(1+0.4s)(1+0.025s)}$

2. ✖ $\frac{150}{s(1+0.4s)(1+0.025s)}$

3. ✔ $\frac{250}{s(1+0.4s)(1+0.025s)}$

4. ✖ $\frac{100}{s(1+0.4s)(1+0.025s)}$

Question Number : 81 Question Id : 2839368641 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Addition of a pole to the open loop transfer function has the effect of

Options :

1. ✔ Shifting root locus to right side of the s-plane

2. ✖ Shifting root locus to left side of the s-plane

3. ✖ Shifting root locus to up and down on the s-plane

4. ✖ has no effect on the root-locus plot

Question Number : 82 Question Id : 2839368642 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The steady state accuracy is increased by

Options :

1. ✖ differentiator

2. ✔ integrator

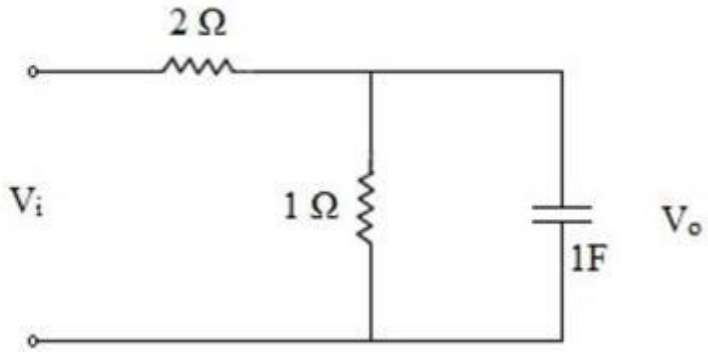
3. ✖ phase lead compensator

4. ✖ phase lag compensator

Question Number : 83 Question Id : 2839368643 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The transfer function of the system shown in figure below is



Options :

1. ✔ $1 / (2s+3)$

2. ✖ $1/ s(s+1)$

3. ✖ $1/5$

4. ✖ $S / (2s^2+s+1)$

Question Number : 84 Question Id : 2839368644 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The % error in steady state output of first order system subjected to a step, in 4 time constants of the time lapsing is

Options :

1. ✖ $\pm 2\ \%$

2. ✖ $\pm 4\ \%$

3. ✖ $\pm 3.5\ \%$

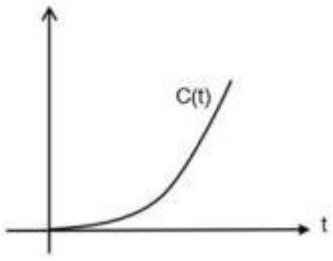
4. ✔ $\pm 2.5\ \%$

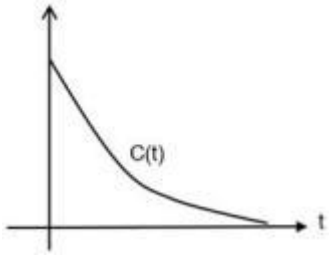
Question Number : 85 Question Id : 2839368645 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

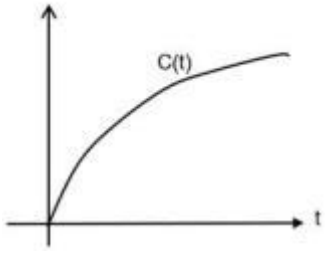
Correct Marks : 1 Wrong Marks : 0

Which one of the following is the response for unit impulse function for first order system?

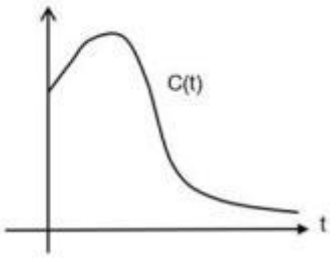
Options :

1. ✖ 

2. ✔ 

3. ✖ 

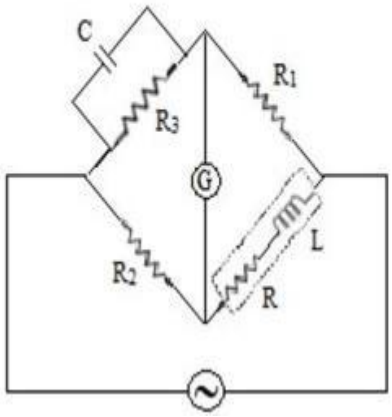
4. ✖



Question Number : 86 Question Id : 2839368646 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Figure shown below is a bridge for measuring the resistance and inductance of a choke.
What are the expressions for unknown R and L under bridge balance condition?



Options :

1. ✖ $R = \frac{R_1 R_2}{R_3}, \quad L = \frac{R_1 R_2}{C}$

2. ✖ $R = \frac{R_1 R_3}{R_2}, \quad L = R_1 R_2 C$

3. ✔ $R = \frac{R_1 R_2}{R_3}, \quad L = R_1 R_2 C$

4. ✖ $R = \frac{R_1 R_3}{R_2}, \quad L = \frac{C}{R_1 R_2}$

Question Number : 87 Question Id : 2839368647 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A resistance is measured by the voltmeter-ammeter method employing dc excitation. If the voltmeter and ammeter readings are subject to maximum possible percentage error of ±2.4 % and ±1% respectively, then the magnitude of the maximum possible error in the value of resistance deduced from the measurement is nearly

Options :

1. ✖ 2.4%

2. ✖ 1.4%

3. ✖ 1.0%

4. ✔ 3.4%

Question Number : 88 Question Id : 2839368648 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A kelvin double bridge is best suited for the measurement of

Options :

1. ✖ inductance

2. ✖ capacitance

3. ✖ high resistance

4. ✔ low resistance

Question Number : 89 Question Id : 2839368649 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Four ammeters with the following specification are available

Instrument	Full scale value	Accuracy % of full scale
M1	20	± 0.1
M2	10	± 0.2
M3	5	± 0.5
M4	1	± 1

A current of 1A is to be measured. To obtain minimum error in the reading, one should select the meter

Options :

1. ✖ M1

2. ✖ M2

3. ✖ M3

4. ✔ M4

Question Number : 90 Question Id : 2839368650 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

For a given frequency, the deflecting torque in an induction type Ammeter is proportional to

Options :

1. ✖ I

2. ✔ I^2

3. ✖ I^3

4. ✖ $\sqrt{I}$

Question Number : 91 Question Id : 2839368651 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A dynamometer type wattmeter responds to the

Options :

1. ✔ average value of active power

2. ✖ average value of reactive power

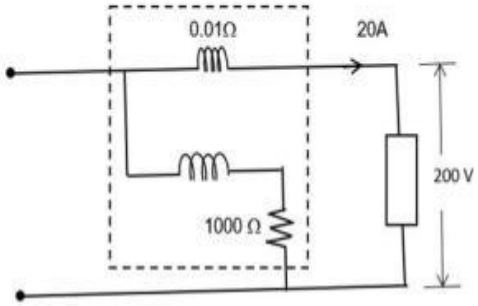
3. ✖ peak value of active power

4. ✖ peak value of reactive power

Question Number : 92 Question Id : 2839368652 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In the figure shown, the resistances of the series & shunt coils of wattmeter are 0.01Ω and 1000Ω respectively and both are non-inductive. The load is taking a current of 20A at 200V and 0.8 p.f lagging. The reading of wattmeter is



Options :

1. ✔ 3204 W

2. ✖ 3200 W

3. ✖ 4000 W

4. ✖ 6408 W

Question Number : 93 Question Id : 2839368653 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A 230 V single phase energy meter has a constant load current of 4A passing through it for 5 hours at unity power factor. If the meter makes 1104 revolutions during this period, the meter constant is

Options :

1. ✖ 480 rev/kWh

2. ✔ 240 rev/kWh

3. ✖ 320 rev/kWh

4. ✖ 960 rev/kWh

Question Number : 94 Question Id : 2839368654 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A galvanometer has a resistance of G ohms. It is shunted by a resistance of S Ohms. How much resistance should be added so that the main current remains unchanged?

Options :

1. ✖ $\frac{S}{S+G}$

2. ✖ $\frac{G}{S+G}$

3. ✖ $\frac{SG}{S+G}$

4. ✔ $\frac{G^2}{S+G}$

Question Number : 95 Question Id : 2839368655 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In two wattmeter method of power measurement, if W_1 and W_2 are wattmeter readings then the power factor of the load is

Options :

1. ✖ $\text{Cos}\left[tan^{-1}\left\{\frac{(W_1-W_2)}{W_1+W_2}\right\}\right]$

2. ✔ $\text{Cos}\left[tan^{-1}\left\{\frac{\sqrt{3}\,(W_1-W_2)}{W_1+W_2}\right\}\right]$

3. ✖ $\text{Cos}\left[tan^{-1}\left\{\frac{\sqrt{3}\,(W_1+W_2)}{W_1-W_2}\right\}\right]$

4. ✖ $\text{Cos}\left[tan^{-1}\left\{\frac{(W_1+W_2)}{W_1-W_2}\right\}\right]$

Question Number : 96 Question Id : 2839368656 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In extrinsic semiconductors

Options :

1. ✖ number of holes and electrons are equal

2. ✖ number of holes are more than electrons

3. ✖ number of electrons are more than holes

4. ✔ either electrons or holes will be more

Question Number : 97 Question Id : 2839368657 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The reduced form of the Boolean expression $Y = (\bar{A}.BC+D)(\bar{A}.D+\bar{B}.\bar{C})$ can be written as

Options :

1. ✔ $\bar{A}.D + \bar{B}.\bar{C}.D$

2. ✖ $AD + B.\bar{C}.D$

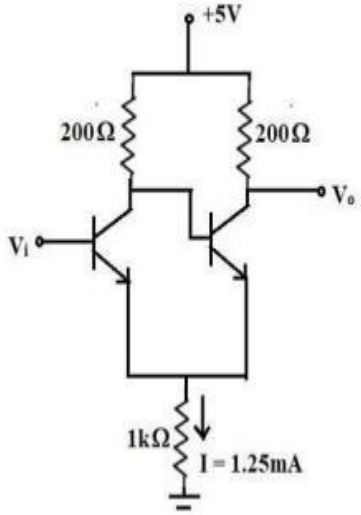
3. ✖ $(\bar{A}+D)\ (\bar{B}.C+\bar{D})$

4. ✖ $A.\bar{D}+BC.\bar{D}$

Question Number : 98 Question Id : 2839368658 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In the Schmitt trigger circuit shown in figure below, if $V_{CE(sat)} = 0.1V$, then output logic low level $V_{(OL)}$ is



Options :

1. ✖ 1.25 V

2. ✔ 1.35 V

3. ✖ 2.50 V

4. ✖ 5.00 V

Question Number : 99 Question Id : 2839368659 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Binary representation of a decimal number is 10101, what is that number

Options :

1. ✖ 19

2. ✖ 20

3. ✔ 21

4. ✖ 22

Question Number : 100 Question Id : 2839368660 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The voltage gain of common collector configuration is

Options :

1. ✖ 1

2. ✖ very high

3. ✖ 0

4. ✔ slightly less than 1

Question Number : 101 Question Id : 2839368661 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Among the following the slowest analog-to-digital converter (ADC) is

Options :

1. ✖ parallel approximation type

2. ✖ successive approximation type

3. ✔ integrating type

4. ✖ counting type

Question Number : 102 Question Id : 2839368662 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

An OP-Amp has an open-loop gain of 10^5 and an open-loop upper cutoff frequency of 10 Hz. If this OP-Amp is connected as an amplifier with a closed loop gain of 100, then the new upper cutoff frequency is

Options :

1. ✖ 10 Hz

2. ✖ 100 Hz

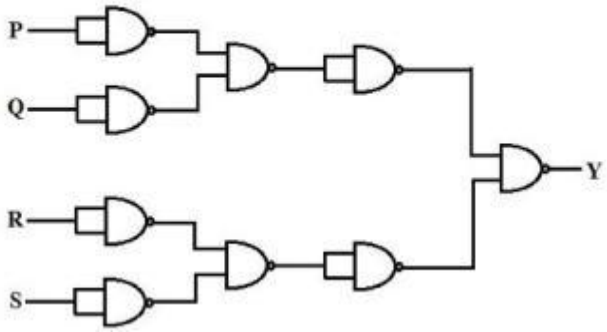
3. ✔ 10 k Hz

4. ✖ 100 k Hz

Question Number : 103 Question Id : 2839368663 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The Boolean expression for the output Y in terms of inputs P,Q,R and S is



Options :

1. ✖ $\overline{P} + \overline{Q} + \overline{R} + \overline{S}$

2. ✔ $P + Q + R + S$

3. ✖ $(\overline{P} + \overline{Q})(\overline{R} + \overline{S})$

4. ✖ $(P+Q)\,(R+S)$

Question Number : 104 Question Id : 2839368664 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The number of comparators needed in a parallel conversion type 8-bit A to D converter is

Options :

1. ✖ 8

2. ✖ 16

3. ✔ 255

4. ✖ 256

Question Number : 105 Question Id : 2839368665 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In 8085 microprocessors for each instruction cycle, which of the following is the first operation?

Options :

1. ✖ Memory read

2. ✔ Opcode fetch

3. ✖ Memory write

4. ✖ Checking for i/o devices

Question Number : 106 Question Id : 2839368666 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

When a line commutated converter operates in the inverter mode

Options :

1. ✖ It draws both real and reactive power from the A.C. supply

2. ✖ It draws real power only from A.C. supply

3. ✖ It delivers both real and reactive power to the A.C. supply

4. ✔ It delivers real power to the A.C. supply

Question Number : 107 Question Id : 2839368667 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A switched mode power supply operating at 20 kHz to 100 kHz range uses as the main switching element

Options :

1. ✖ Thyristor

2. ✔ MOSFET

3. ✖ Triac

4. ✖ UJT

Question Number : 108 Question Id : 2839368668 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A single phase diode bridge rectifier supplies a highly inductive load. The ac supply side current waveform will be

Options :

1. ✖ sinusoidal

2. ✖ constant d.c

3. ✖ triangular

4. ✔ square

Question Number : 109 Question Id : 2839368669 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A dc to dc transistor chopper supplied from a fixed voltage d.c source feeds a fixed RL load and a free-wheeling diode. The chopper operates at 1kHz and 50% duty cycle. Without changing the value of the average d.c current through the load, if it is desired to reduce the ripple content of load current, the control action needed will be

Options :

1. ✔ increase the chopper frequency only

2. ✖ increase the chopper frequency and duty cycle in equal ratio

3. ✖ decrease chopper frequency only

4. ✖ decrease duty cycle only

Question Number : 110 Question Id : 2839368670 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

An inverter is feeding a 3-phase induction motor. The stator winding resistance of the motor is negligibly small. During starting, the current inrush can be avoided without sacrificing the starting torque by suitably applying

Options :

1. ✖ low voltage at rated frequency

2. ✔ low voltage keeping v/f ratio constant

3. ✖ rated voltage at low frequency

4. ✖ rated voltage at rated frequency

Question Number : 111 Question Id : 2839368671 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a 3-ϕ semi converter, for a firing angle equal to 90° and for continuous conduction, freewheeling diode conducts for

Options :

1. ✖ 0°

2. ✖ 60°

3. ✖ 90°

4. ✔ 30°

Question Number : 112 Question Id : 2839368672 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which semiconductor power device out of the following is not a current triggered device?

Options :

1. ✖ Thyristor

2. ✖ G.T.O

3. ✖ Triac

4. ✔ MOSFET

Question Number : 113 Question Id : 2839368673 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

In a 3-phase controlled bridge rectifier, the overlap angle is mainly due to

Options :

1. ✖ Load inductance only

2. ✔ Source inductance only

3. ✖ Both source and load inductances

4. ✖ Improper firing of thyristors only

Question Number : 114 Question Id : 2839368674 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a thyristor d.c chopper, which type of commutation results in best performance?

Options :

1. ✔ voltage commutation

2. ✖ current commutation

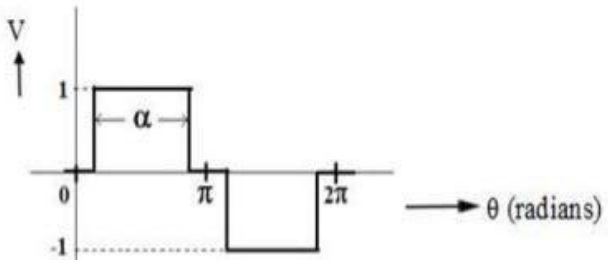
3. ✖ load commutation

4. ✖ supply commutation

Question Number : 115 Question Id : 2839368675 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

An inverter has a periodic output voltage with the output waveform as shown in figure below. When the conduction angle $\alpha = 120$, the fundamental component of the output voltage is



Options :

1. ✔ 0.78 V

2. ✖ 1.10 V

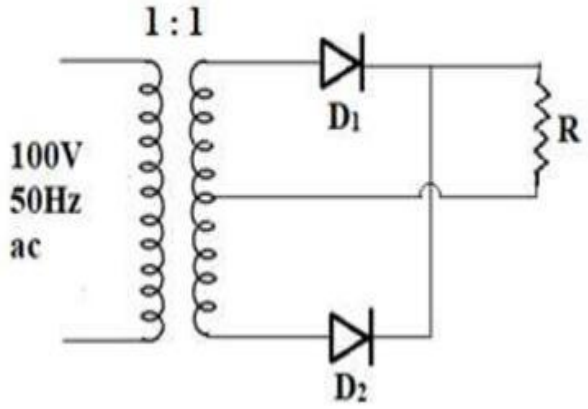
3. ✖ 0.90 V

4. ✖ 1.27 V

Question Number : 116 Question Id : 2839368676 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In the circuit shown in figure, the peak reverse voltage across the diodes D1 and D2 is



Options :

1. ✖ 50 V

2. ✖ $\sqrt{2} \times 50$ V

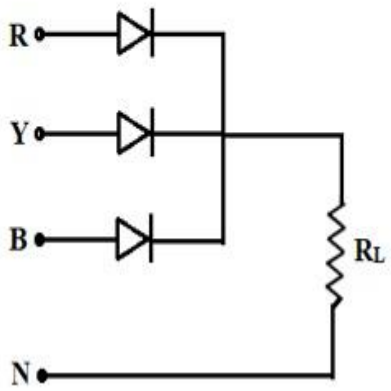
3. ✖ 100 V

4. ✔ $\sqrt{2} \times 100$ V

Question Number : 117 Question Id : 2839368677 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

As shown in figure, 100 V, 400 Hz ac supply is fed into 3-phase half-wave rectifier. The ripple frequency at the output is



Options :

1. ✖ 400 Hz

2. ✖ 800 Hz

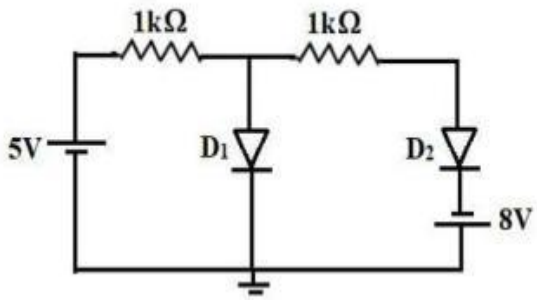
3. ✔ 1200 Hz

4. ✖ 2400 Hz

Question Number : 118 Question Id : 2839368678 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Assuming that the diodes are ideal in the figure shown, the current in diode D1 is



Options :

1. ✖ 8 m A

2. ✖ 5 m A

3. ✔ 0 m A

4. ✖ -3 m A

Question Number : 119 Question Id : 2839368679 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Identify the correct statement among the following

The source inductance of an ac to dc line commutated phase-controlled converter

1. limits dv / dt capability of thyristors
2. causes a voltage drop in the dc terminal voltage
3. improves the line side power factor
4. limits the range of firing angle
5. reduces the line side power factor

Options :

1. ✖ 1, 3 and 4 are correct

2. ✖ 1, 2 and 4 are correct

3. ✖ 2 and 4 are correct

4. ✔ 2 and 5 are correct

Question Number : 120 Question Id : 2839368680 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The average output voltage of a 1-ϕ full wave rectifier in terms of input peak voltage Vm is

Options :

1. ✔ $2\ Vm / \pi$

2. ✖ Vm / π

3. ✖ $Vm / 2\pi$

4. ✖ $1.5Vm / \pi$