

Question Paper Preview

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 30th May 2018 Shift2
Subject Name:	Electrical Engineering
Creation Date:	2018-05-30 17:02:00
Duration:	120
Total Marks:	120
Display Marks:	No
Calculator:	None
Magnifying Glass Required?:	No
Ruler Required?:	No
Eraser Required?:	No
Scratch Pad Required?:	No
Rough Sketch/Notepad Required?:	No
Protractor Required?:	No

Display Number Panel:	Yes
Group All Questions:	No

**Question Number : 1 Question Id : 5113468641 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical**

If $A = \begin{bmatrix} 2 & 0 & 6 \\ 4 & 5 & 0 \\ 1 & 5 & k \end{bmatrix}$ is a singular matrix then the value of $k =$

Options :

1. ✘ 5
2. ✘ -7
3. ✓ -9
4. ✘ 10

**Question Number : 2 Question Id : 5113468642 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical**

If $A = \begin{bmatrix} -1 & 2 & -2 \\ 1 & 2 & 1 \\ -1 & -1 & 0 \end{bmatrix}$ then the characteristic polynomial of A is

Options :

1. ✓ $\lambda^3 - \lambda^2 - 5\lambda + 5$
2. ✗ $\lambda^3 - \lambda^2 + 5\lambda + 5$
3. ✗ $\lambda^3 + \lambda^2 - 5\lambda - 5$
4. ✗ $\lambda^3 - \lambda^2 + 5\lambda + 5$

Question Number : 3 Question Id : 5113468643 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If $I = \int_0^{\frac{\pi}{2}} \frac{\sqrt{\sin x}}{\sqrt{\sin x} + \sqrt{\cos x}} dx$ then the value of I is

Options :

1. ✗ $\frac{\pi}{8}$
2. ✗ $\frac{\pi}{6}$
3. ✗ $\frac{\pi}{5}$
4. ✓ $\frac{\pi}{4}$

Question Number : 4 Question Id : 5113468644 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If $f(x) = x^2 - 6x + 8$ satisfies all the conditions of Rolle's mean value theorem $[2, 4]$, then 'c' of the mean value theorem

Options :

1. ✗ 6
2. ✓ 3
3. ✗ 4

4. ✖ 5

Question Number : 5 Question Id : 5113468645 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The unit vector normal to $x^2 - y^2 + z = 2$ at the point $(1, -1, 2)$ is

Options :

1. ✓ $\frac{2i+2j+z}{3}$

2. ✖ $\frac{2i+2j-z}{3}$

3. ✖ $\frac{2i+j+z}{3}$

4. ✖ $\frac{i+2j+z}{3}$

Question Number : 6 Question Id : 5113468646 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If $\phi = xyz$ the directional derivative of ϕ in the direction of i is

Options :

1. ✖ 0(zero)

2. ✓ 1

3. ✖ 2

4. ✖ -1

Question Number : 7 Question Id : 5113468647 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The solution of $x dy - y dx = \lambda (x^2 + y^2) dy$ is

Options :

1. ✓ $\tan^{-1} \frac{y}{x} = \lambda y + c$

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

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

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

Question Number : 8 Question Id : 5113468648 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The Particular integral of $(D^3 - 4D^2)y = 8$ is

Options :

1. ✖ x^2

2. ✔ $-x^2$

3. ✖ x^{-2}

4. ✖ x^3

Question Number : 9 Question Id : 5113468649 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If $L[f(t)]$ denotes the Laplace transform of $f(t)$, then $L[t \sin 2t] =$

Options :

1. ✔ $\frac{4}{(s^2+4)^2}$

2. ✖ $\frac{4s}{(s^2-4)^2}$

3. ✖ $\frac{4s}{(s^2+4s)^2}$

4. ✖ $\frac{4s}{(s^2+4)^2}$

Question Number : 10 Question Id : 5113468650 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If C is a circle given by $|z|=2$ and $f(z) = \frac{z-2}{z(z-1)}$ then the value of $\text{Res}[f(z)]_{z=1}$

Options :

1. ✖ 2

2. ✖ - 2

3. ✖ 1

4. ✔ -1

Display Number Panel:

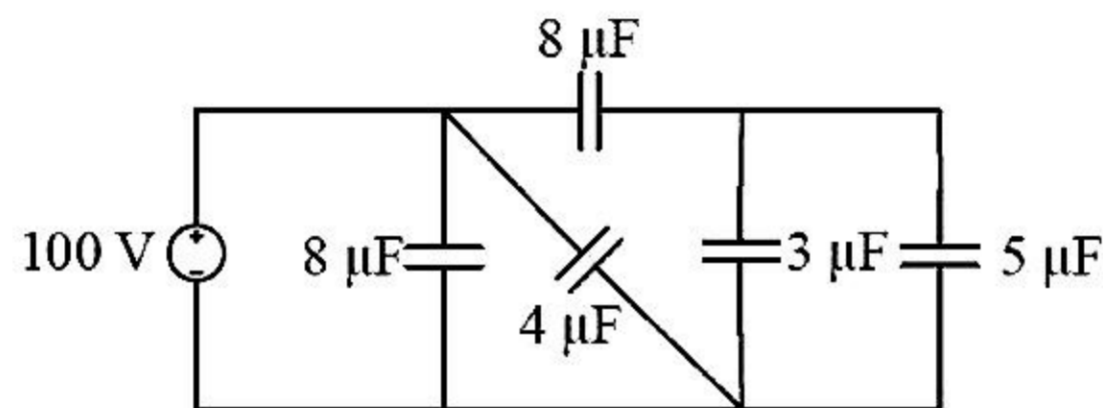
Yes

Group All Questions:

No

Question Number : 11 Question Id : 5113468651 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Find the charging time to charge the capacitances shown in below figure, by steady direct current of constant magnitude of 10 A.



Options :

1. ✖ 100 μS

2. ✖ 28 μS

3. ✔ 160 μS

4. ✖ 280 μS

Question Number : 12 Question Id : 5113468652 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

What is the energy supplied by the unit impulse source, when it is applied to an inductor of value 1H

Options :

1. ✖ ∞

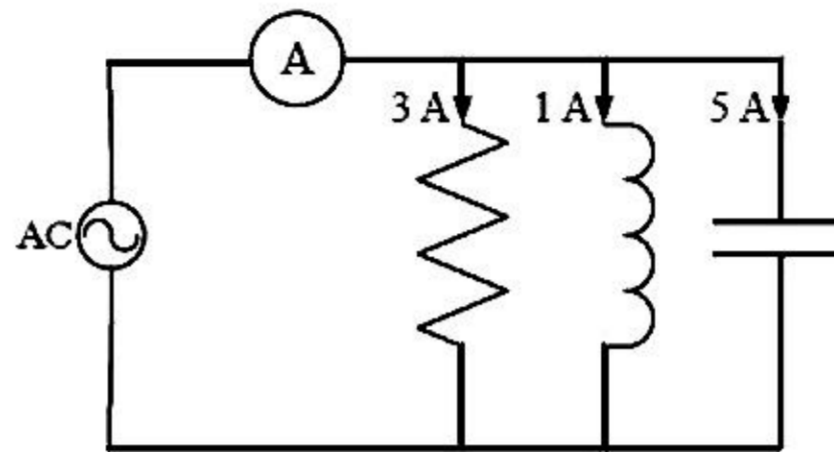
2. ✖ 1 J

3. ✓ 0.5 J

4. ✗ 0 J

Question Number : 13 Question Id : 5113468653 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The current read by the ammeter A in the circuit shown in the figure is



Options :

1. ✗ 9 A

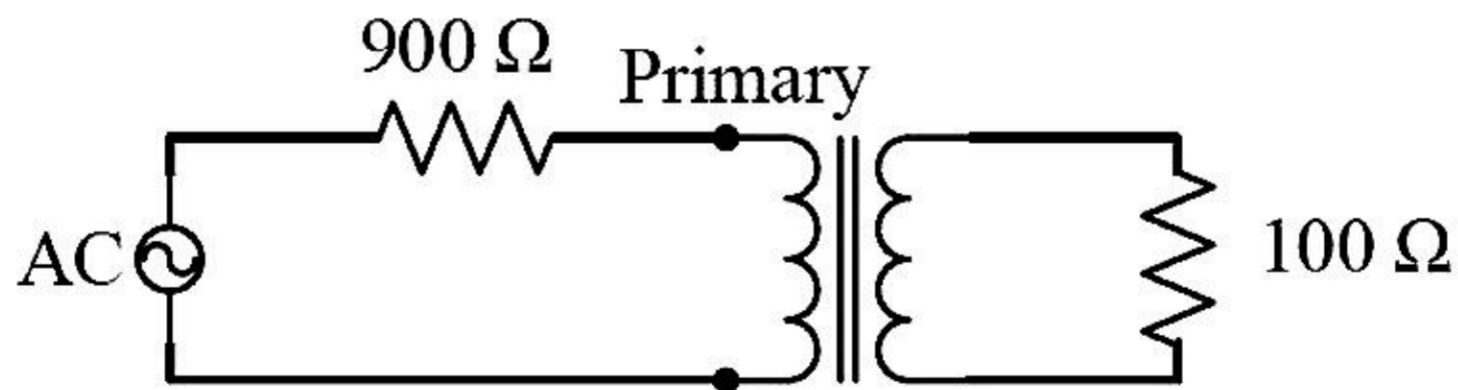
2. ✓ 5 A

3. ✗ 3 A

4. ✗ 1 A

Question Number : 14 Question Id : 5113468654 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Consider the circuit shown in the given figure. For maximum power transfer to the load, the primary to secondary turns ratio must be



Options :

1. ✗ 9:1

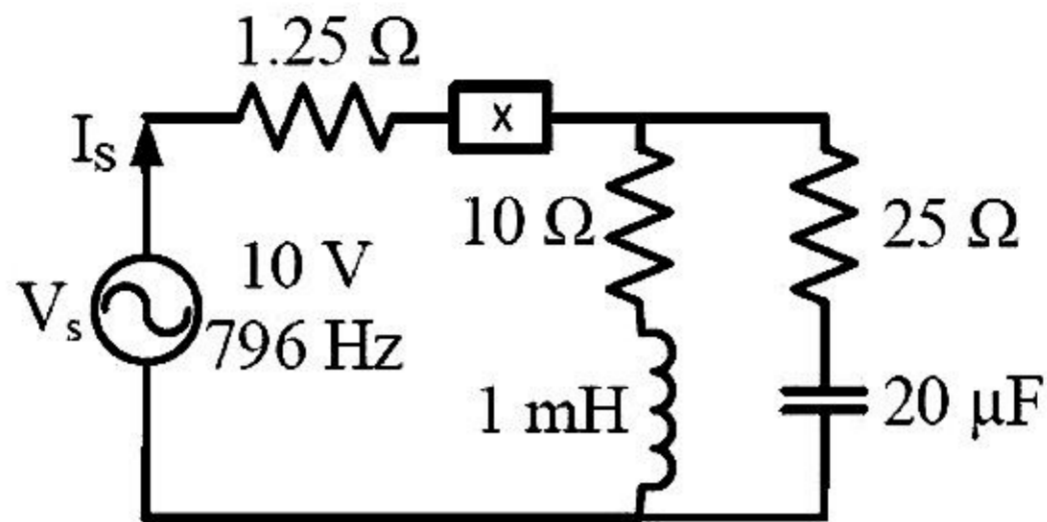
2. ✗ 3:1

3. ✓ 1:3

4. ✗ 1:9

Question Number : 15 Question Id : 5113468655 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Determine the source current (I_s) given in the below circuit, when the value of 'X' puts the source current in phase with the source voltage (V_s).



Options :

1. ✗ 0.95 A

2. ✓ 1.05 A

3. ✗ 0.85 A

4. ✗ 1.15 A

Question Number : 16 Question Id : 5113468656 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The current through the current coil of a wattmeter is given by $i = (1 + 2 \sin \omega t)$ A and the voltage across the pressure coil is $v = (2 + 3 \sin 2 \omega t)$ V. The wattmeter will read

Options :

1. ✗ 8 W

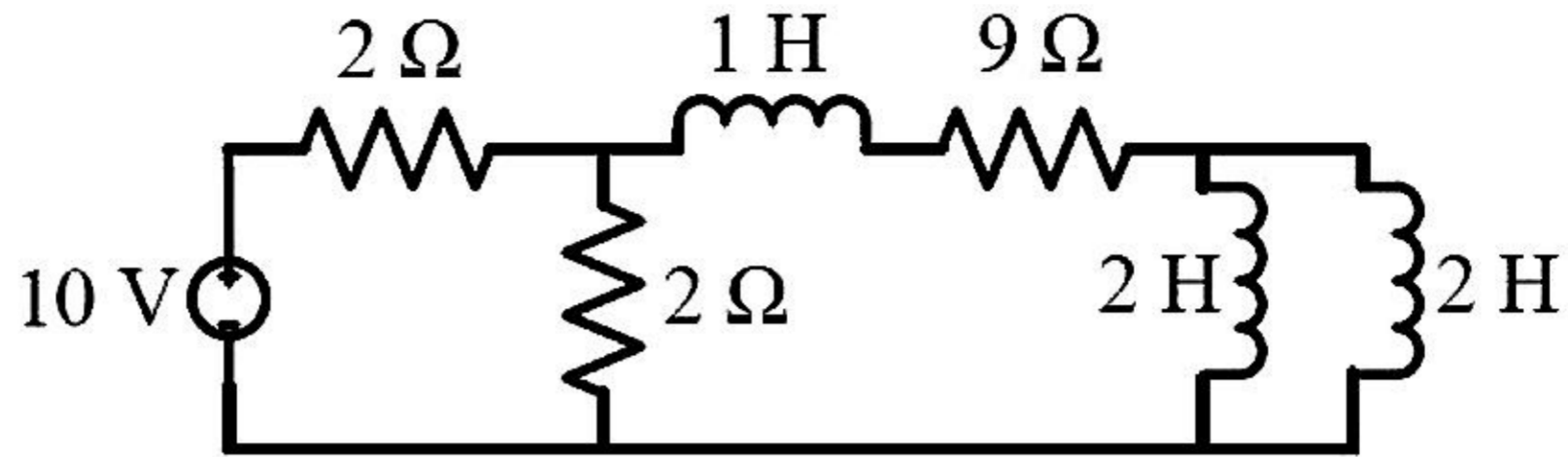
2. ✗ 5.05 W

3. ✓ 2 W

4. ✗ 1 W

Question Number : 17 Question Id : 5113468657 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The time constant of the given network is



Options :

1. ✘ 1 S
2. ✔ 0.5 S
3. ✘ 2 S
4. ✘ 5 S

Question Number : 18 Question Id : 5113468658 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

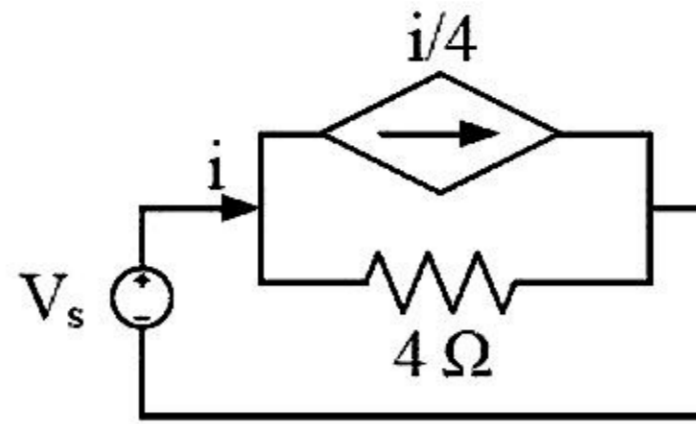
An ideal transformer has turns ratio of 2:1. Considering high voltage side as port 1 and low voltage side as port 2, the transmission line parameters of the transformer will be

Options :

1. ✘ $\begin{bmatrix} 0 & -2 \\ 0.5 & 0 \end{bmatrix}$
2. ✘ $\begin{bmatrix} -2 & 0 \\ 0 & -0.5 \end{bmatrix}$
3. ✔ $\begin{bmatrix} 2 & 0 \\ 0 & 0.5 \end{bmatrix}$
4. ✘ $\begin{bmatrix} 0.5 & 0 \\ 0 & 2 \end{bmatrix}$

Question Number : 19 Question Id : 5113468659 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The network shown in the below figure, the effective resistance faced by the voltage source is,



Options :

1. ✘ $4\ \Omega$
2. ✔ $3\ \Omega$
3. ✘ $5\ \Omega$
4. ✘ $10\ \Omega$

Question Number : 20 Question Id : 5113468660 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

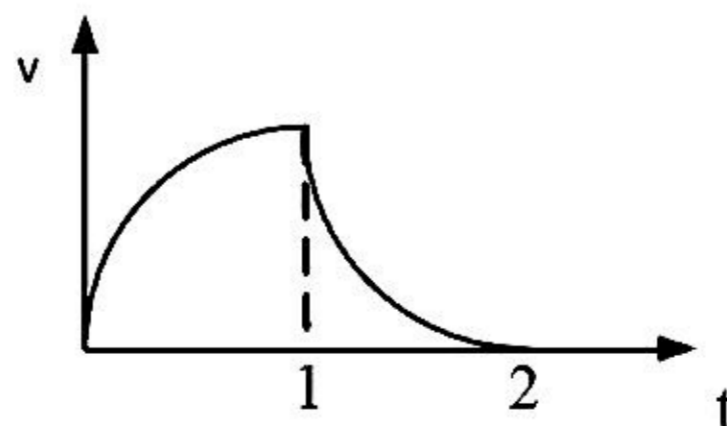
The number of $2\ \mu\text{F}$, $400\ \text{V}$ capacitors needed to obtain a capacitance value of $1.5\ \mu\text{F}$ rated for $1600\ \text{V}$ is

Options :

1. ✔ 12
2. ✘ 8
3. ✘ 6
4. ✘ 4

Question Number : 21 Question Id : 5113468661 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A voltage wave is shown in below figure, where $v = 100(1 - e^{-10t})$ for $0 < t < 1$ and $v = 100e^{-10t}$ for $1 < t < 2$. Find the RMS value of the voltage wave up to $t = 2$.



Options :

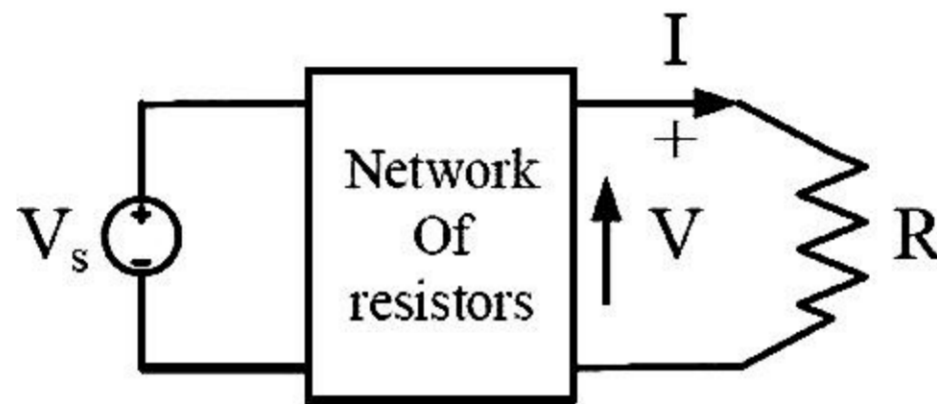
1. ✘ 100 V
2. ✔ 65.25 V
3. ✘ 125.5 V
4. ✘ 85 V

Question Number : 22 Question Id : 5113468662 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A two port network has been shown in below figure, where the block represents a network of resistors. A resistance is connected at the output. The given conditions of the network are

- i. When $R = \infty$, $V = 10$ V
- ii. When $R = 0$, $I = 5$ A

Find the new value of V when $R = 8 \Omega$.



Options :

1. ✘ 10 V
2. ✘ 5 V
3. ✔ 8 V
4. ✘ 15 V

Question Number : 23 Question Id : 5113468663 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Three resistors of value $2 \text{ K}\Omega$, $5 \text{ K}\Omega$ and $10 \text{ K}\Omega$ are connected in series and a 20 V dc supply is applied across the series combination. A voltmeter of internal resistance $10 \text{ K}\Omega$ reads V_1 volts across the $5 \text{ K}\Omega$ resistor and V_2 across the $10 \text{ K}\Omega$ resistor. Which of the following statements is true?

Options :

1. ✘ $V_1 = 2V_2$

2. ✖ $V_1 = \frac{V_2}{2}$

3. ✖ $V_1 < \frac{V_2}{2}$

4. ✔ $V_1 > \frac{V_2}{2}$

Question Number : 24 Question Id : 5113468664 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Two infinite parallel planes carry equal but opposite uniform charge densities, σ coulomb/m² on $y = 0$ plane and $-\sigma$ coulomb/m² on $y = 3$ plane. Then, the Electric field on the y -axis at $y = 1.5$ m is

Options :

1. ✖ $\vec{E} = -\frac{\sigma}{\epsilon_0} \hat{y}$

2. ✔ $\vec{E} = \frac{\sigma}{\epsilon_0} \hat{y}$

3. ✖ $\vec{E} = -\frac{\sigma}{3\epsilon_0} \hat{y}$

4. ✖ $\vec{E} = \frac{\sigma}{3\epsilon_0} \hat{x}$

Question Number : 25 Question Id : 5113468665 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If a uniformly charged spherical shell whose radius is R and whose total charge is q , then the potential at

$\frac{R}{2}$, is _____. Use infinity as reference.

Options :

1. ✖ $V = \frac{q}{2\pi\epsilon_0 R}$

2. ✖ $V = 0$

3. ✔ $V = \frac{q}{4\pi\epsilon_0 R}$

4. ✖ $V = \infty$

Question Number : 26 Question Id : 5113468666 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If a Gaussian surface of radius is R is enclosed by $-2q$ at centre and q at $\frac{R}{2}$, then the surface integral of the Electric fields produced by these charges over the Gaussian surface is

Options :

1. ✖ q

2. ✖ $-q$

3. ✖ $\frac{q}{\epsilon_0}$

4. ✔ $-\frac{q}{\epsilon_0}$

Question Number : 27 Question Id : 5113468667 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The capacitance per unit length of two coaxial metal cylindrical tubes of radii a and b is... ($a > b$, and $V(b)$ is at higher potential)

Options :

1. ✖ $\frac{2\pi\epsilon_0}{\ln\left(\frac{b}{a}\right)}$

2. ✔ $\frac{2\pi\epsilon_0}{\ln\left(\frac{a}{b}\right)}$

3. ✖ $\frac{4\pi\epsilon_0}{\ln\left(\frac{b}{a}\right)}$

4. ✖ $\frac{4\pi\epsilon_0}{\ln\left(\frac{a}{b}\right)}$

Question Number : 28 Question Id : 5113468668 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The magneto static field is produced due to

Options :

1. ✖ stationary charges only

2. ✖ charges are moving with variable velocity only

3. ✓ steady currents only
4. ✗ moving charges of variable velocity and steady currents

Question Number : 29 Question Id : 5113468669 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The magnetic field on the $x > 0$ due to an infinite uniform surface current $\vec{K} = -k \hat{z}$, flowing over the $y - z$ plane (i.e., $x = 0$ plane) is

Options :

1. ✗ $\vec{B} = \frac{\mu_0}{2} k \hat{x}$
2. ✓ $\vec{B} = \frac{\mu_0}{2} k \hat{y}$
3. ✗ $\vec{B} = -\frac{\mu_0}{2} k \hat{y}$
4. ✗ $\vec{B} = -\frac{\mu_0}{2} k \hat{x}$

Question Number : 30 Question Id : 5113468670 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The self inductance per unit length of long solenoid, of radius R , carrying n turns per unit length is

Options :

1. ✗ $L = \mu_0 n \pi R^2$
2. ✗ $L = 2\mu_0 n \pi R^2$
3. ✓ $L = \mu_0 n^2 \pi R^2$
4. ✗ $L = 2\mu_0 n^2 \pi R^2$

Question Number : 31 Question Id : 5113468671 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Step response of a first order system is

Options :

1. ✓ exponential
2. ✗ linear

- 3. ✖ triangular
- 4. ✖ sinusoidal

Question Number : 32 Question Id : 5113468672 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The input signal for frequency response analysis of a linear time invariant system is

Options :

- 1. ✖ step input
- 2. ✔ sinusoidal input
- 3. ✖ triangular input
- 4. ✖ impulse

Question Number : 33 Question Id : 5113468673 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The dc gain of $G(s) = 12/(s+2)(s+3)$ is

Options :

- 1. ✔ 2
- 2. ✖ 12
- 3. ✖ 6
- 4. ✖ 1

Question Number : 34 Question Id : 5113468674 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

An impulse is applied to a system whose time response is e^{-t} . The transfer function is

Options :

- 1. ✖ $1/s$
- 2. ✔ $1/(1+s)$
- 3. ✖ $1/(1-s)$

4. ✖ $s/(1+s)$

Question Number : 35 Question Id : 5113468675 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

An RC series circuit with the output voltage taken across the capacitor is a

Options :

1. ✔ lag compensator
2. ✖ lead compensator
3. ✖ lag-lead compensator
4. ✖ proportional controller

Question Number : 36 Question Id : 5113468676 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Error series gives the value of

Options :

1. ✖ steady state error
2. ✖ error constants
3. ✔ time variation of error
4. ✖ overshoot

Question Number : 37 Question Id : 5113468677 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Phase margin is calculated at

Options :

1. ✔ gain cross-over frequency
2. ✖ phase cross-over frequency
3. ✖ resonant frequency
4. ✖ any frequency

Question Number : 38 Question Id : 5113468678 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

For under damped situation,

Options :

1. ✘ phase changes gradually at resonant frequency
2. ✘ phase remains constant around resonant frequency
3. ✔ phase changes abruptly at resonant frequency
4. ✘ phase is constant at all frequencies

Question Number : 39 Question Id : 5113468679 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

PI controller is a

Options :

1. ✘ lead compensator
2. ✔ lag compensator
3. ✘ lag-lead compensator
4. ✘ high pass filter

Question Number : 40 Question Id : 5113468680 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Lyapunov's stability criterion is used for

Options :

1. ✘ linear systems only
2. ✘ non-linear systems only
3. ✔ linear and non linear systems
4. ✘ time varying systems only

Question Number : 41 Question Id : 5113468681 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

For the system given by $\dot{x}_1 = x_1 + x_2 + u$, $\dot{x}_2 = -2x_1 - x_2 + u$, and $y = x_1$

Options :

1. is observable
2. not observable
3. observability is uncertain
4. observability can't be decided

Question Number : 42 Question Id : 5113468682 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Expression for transfer function in state space representation is given by

Options :

1. $C(SI - A)^{-1}$
2. $(SI - A)^{-1}$
3. $C(SI - A)^{-1}B$
4. $(SI - A)^{-1}B$

Question Number : 43 Question Id : 5113468683 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If $\Phi(t)$ is the state transition matrix, then which of the following is correct?

Options :

1. $\Phi(0) = I$
2. $\Phi^{-1}(t) = \Phi(-t)$
3. $[\Phi(t)]^K = \Phi(Kt)$
4. $\Phi^{-1}(t) = \Phi(t)$

Question Number : 44 Question Id : 5113468684 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Phase shift due to pole at origin is

Options :

1. ✓ -90^0 irrespective of frequency
2. ✗ varies linearly from 0^0 to 90^0
3. ✗ varies linearly from 0^0 to -90^0
4. ✗ $+90^0$ irrespective of frequency

Question Number : 45 Question Id : 5113468685 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

For a unity feedback second order system, percentage overshoot is

Options :

1. ✗ $\exp(-\zeta)$
2. ✓ $\exp(-\zeta\pi/\sqrt{1-\zeta^2})$
3. ✗ $\exp(\zeta\pi/\sqrt{1-\zeta^2})$
4. ✗ $\exp(1/\sqrt{1-\zeta^2})$

Question Number : 46 Question Id : 5113468686 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A transmission line has a reactance of 1 pu is operating at $V_s = V_r = 1$ pu. The generator is connected at source end which is delivering 0.5 pu of active power and the transmission line is compensated with a series capacitance of 0.5 pu. Find the load angle with series capacitance compensation?

Options :

1. ✓ 14.5°
2. ✗ 29°
3. ✗ 35.5°
4. ✗ 10.5°

Question Number : 47 Question Id : 5113468687 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Specified quantities of Load bus are

Options :

1. P and Q
2. V and δ
3. P and δ
4. P and V

Question Number : 48 Question Id : 5113468688 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Range of accelerating factor is

Options :

1. 50 to 100
2. 1 to 10
3. 1.4 to 1.8
4. 10.8 to 11.2

Question Number : 49 Question Id : 5113468689 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

For n bus power system, size of Y bus matrix is

Options :

1. $(n-1) \times (n-1)$
2. $(n-2) \times (n-2)$
3. $n \times n$
4. $(n-1) \times (n-2)$

Question Number : 50 Question Id : 5113468690 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

With same maximum voltage to earth, which ac system (with p.f. 0.8) will require more copper as compared to dc 2 wire system

Options :

1. ✖ single phase. 2 wire (mid point earthed)
2. ✖ single phase. 3 wire (neutral=1/2 outer)
3. ✖ three phase three wire
4. ✔ three phase-four wire (neutral = outer)

Question Number : 51 Question Id : 5113468691 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Corona usually occurs when the electrostatic stress in the air around the conductor succeeds

Options :

1. ✔ 30 kV (maximum value)/cm
2. ✖ 22 kV (maximum value)/cm
3. ✖ 11 kV (rms value)/cm
4. ✖ 6.6 kv (rms value)/cm

Question Number : 52 Question Id : 5113468692 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The inductance of a single phase two wire line is given by (D is the distance between conductors and $2r$ is the diameter of conductor)

Options :

1. ✔ $0.4 \log_e (D/r) \text{ mH/km}$
2. ✖ $0.55 \log_e (D/r) \text{ mH/km}$
3. ✖ $0.4 \log_e (r/D) \text{ mH/km}$
4. ✖ $0.55 \log_e (r/D) \text{ mH/km}$

Question Number : 53 Question Id : 5113468693 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

For high voltage, ac circuit breakers, the rated short circuit current is passed for

Options :

1. ✖ 0.01 sec
2. ✖ 0.1 sec
3. ✔ 3 seconds
4. ✖ 30 seconds

Question Number : 54 Question Id : 5113468694 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

In a vacuum circuit breaker, the vacuum is of the order of

Options :

1. ✖ 10mm Hg
2. ✖ 10^{-2} mmHg
3. ✖ 10^{-6} mmHg
4. ✔ 10^{-9} mmHg

Question Number : 55 Question Id : 5113468695 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Power generation equipment in a thermal power plant costs Rs.15,75,000 and has a useful life of 25 years.

If the salvage value of the plant be Rs.75,000 and the rate of annual compound interest be 5% the amount of annual installment by straight line method in Rs. will be

Options :

1. ✖ 30,000
2. ✔ 60,000
3. ✖ 60,500
4. ✖ 60,750

Question Number : 56 Question Id : 5113468696 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Two steam turbines each of 20,000 kW capacity drive a total load of 30,000 kW. The steam rates in kilogram per hour are

$$T_{P1} = 2000 + 10 P_1 - 0.0001 P_1^2 \quad \text{and} \quad T_{P2} = 2000 + 10 P_2 - 0.0001 P_2^2$$

The best division of the load will be

Options :

1. ✓ $T_{P1} = 20,000 \text{ kW}, T_{P2} = 10,000 \text{ kW}$
2. ✗ $T_{P1} = 10,000 \text{ kW}, T_{P2} = 20,000 \text{ kW}$
3. ✗ $T_{P1} = 15,000 \text{ kW}, T_{P2} = 15,000 \text{ kW}$
4. ✗ $T_{P1} = 30,000 \text{ kW}, T_{P2} = 0$

Question Number : 57 Question Id : 5113468697 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A thermal power station was designed to burn coal containing 12% ash. When the plant actually started operating coal having 22% ash was made available. Which unit of the plant will need major modifications?

Options :

1. ✗ Water treatment plant
2. ✗ Pulverizing unit
3. ✓ Ash handling unit
4. ✗ Cooling towers.

Question Number : 58 Question Id : 5113468698 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

What is the expression for fault current in line to line fault?

Options :

1. ✓ $I_f = \sqrt{3} * E_a / (Z_1 + Z_2)$
2. ✗ $I_f = 3 * E_a / (Z_1 + Z_2)$

3. ✖ $I_f = \sqrt{3} * E_a / (Z_1 + Z_2 + Z_0)$

4. ✖ $I_f = 3 * E_a / (Z_1 + Z_2 + Z_0)$

Question Number : 59 Question Id : 5113468699 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

What will be the sum of ($I_B + I_Y$) in case of line to line fault, if the fault is occurring in the B and Y lines?

Options :

1. ✖ ∞

2. ✔ 0

3. ✖ 1

4. ✖ I_R

Question Number : 60 Question Id : 5113468700 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which method of voltage control is applied for long line AC transmissions?

Options :

1. ✖ Switching by shunt capacitors

2. ✖ Tap changing transformers

3. ✔ Switching by shunt reactors

4. ✖ Static Var sources

Question Number : 61 Question Id : 5113468701 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Spot welding is used to weld metal pieces whose thickness

Options :

1. ✖ Should be greater than 12 mm

2. ✖ Greater than 20 mm

3. ✖ Lies between 15 to 20 mm

4. ✓ Lesser than 12 mm

Question Number : 62 Question Id : 5113468702 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

In fluorescent lamp one capacitor is connected across the lamp circuit and another is connected across the starter. Then

Options :

1. ✘ Both the capacitors are used for improving power factor
2. ✘ Both the capacitors are used for reducing radio interference
3. ✓
Former capacitor is used for improving power factor and later is used for reducing radio interference
4. ✘
Former capacitor is used for reducing radio interference and later is used for improving power factor

Question Number : 63 Question Id : 5113468703 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The main electrode of high pressure mercury vapour lamp is made up of

Options :

1. ✓ Tungsten
2. ✘ Hard glass
3. ✘ Quartz
4. ✘ Bronze

Question Number : 64 Question Id : 5113468704 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The practical luminous efficiency of the sodium vapour lamp is of the order of

Options :

1. ✘ 25 to 40 lumens per watt
2. ✘ 40 to 45 lumens per watt

3. ✓ 45 to 50 lumens per watt
4. ✗ 60 to 67 lumens per watt

Question Number : 65 Question Id : 5113468705 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

For best visual performance, the range of brightness within the field of vision

Options :

1. ✓ Should be less than 3:1
2. ✗ Should be greater than 3:1
3. ✗ Should be less than 1:3
4. ✗ Should be greater than 1:3

Question Number : 66 Question Id : 5113468706 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Voltage required for butt welding is

Options :

1. ✗ 22 to 30 V
2. ✗ 8 to 15 V
3. ✗ 15 to 22 V
4. ✓ 2 to 8 V

Question Number : 67 Question Id : 5113468707 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The heat required by the weld is produced due to the contact resistance between the two pieces and is

Options :

1. ✗ Directly proportional to the current
2. ✓ Directly proportional to the square of the current
3. ✗ Inversely proportional to the square of the current

4. ✖ Inversely proportional to the current

Question Number : 68 Question Id : 5113468708 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which among the following is mechanical braking?

Options :

1. ✔ Pneumatic braking
2. ✖ Plugging
3. ✖ Dynamic braking
4. ✖ Regenerative braking

Question Number : 69 Question Id : 5113468709 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

For regenerative braking, the motor which is not suitable is

Options :

1. ✖ DC shunt motor
2. ✖ DC compound motor
3. ✔ DC series motor
4. ✖ AC shunt motor

Question Number : 70 Question Id : 5113468710 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Swamping resistance is used to compensate error due to

Options :

1. ✖ Stray magnetic field.
2. ✔ Temperature variations.
3. ✖ Large supply variations.
4. ✖ Eddy current

Question Number : 71 Question Id : 5113468711 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Hay's Bridge is suitable for the measurement of:

Options :

1. Inductances with $Q > 10$.
2. Inductances with $Q < 10$.
3. Capacitors with high dissipation factor.
4. Capacitors with low dissipation factor.

Question Number : 72 Question Id : 5113468712 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

In a single phase induction type energy meter, the lag adjustment is affected to

Options :

1. Make the series magnet flux to lag behind the applied voltage by 90°
2. The shunt magnet flux to lag behind the applied voltage by 90°
3. The shunt magnet flux in phase with the applied voltage
4. The series magnet flux in phase with the applied voltage.

Question Number : 73 Question Id : 5113468713 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Dead time of the instrument is

Options :

1. the time required by an instrument to being to respond to a change in the measurand.
2. the time required by an instrument to warm up initially.
3. the largest change of input quantity for which there is no output of the instrument.
4. the time required by an instrument to being to respond to no charge in the measured.

Question Number : 74 Question Id : 5113468714 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A CRO screen has 10 divisions on the horizontal scale. If a voltage signal $5\sin(314t + 45^\circ)$ is examined with a line base setting of 5 ms/division, the number of cycle of signal displayed on the screen will be

Options :

1. ✘ 0.5 cycle
2. ✔ 2.5 cycle
3. ✘ 5 cycle
4. ✘ 10 cycle

Question Number : 75 Question Id : 5113468715 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A digital voltmeter has $4\frac{1}{2}$ digit display. The 1 V range can read upto

Options :

1. ✘ 1.000
2. ✘ 1.111
3. ✔ 1.999
4. ✘ 1999

Question Number : 76 Question Id : 5113468716 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The purpose of providing a mirror behind the pointer in a measuring instrument is

Options :

1. ✘ The scale is illuminated through mirror.
2. ✘ With the help of mirror it can be seen whether the pointer is bent or not.
3. ✘
The mirror is semi-transparent so as to allow the observation of the interior of the instrument.
4. ✔
Reading error due to inclined observations are eliminated by removing parallax between the pointer and its image in the mirror.

Question Number : 77 Question Id : 5113468717 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The resolution of a digital ammeter with 3 digital display is

Options :

1. ✘ $1/10000$
2. ✔ $1/1000$
3. ✘ $1/4$
4. ✘ $1/3$

Question Number : 78 Question Id : 5113468718 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A drive system with T , T_1 and ω as motor torque, load torque, and speed respectively, is stable if

Options :

1. ✘ $dT_1/d\omega = dT/d\omega$
2. ✘ $dT/d\omega > dT_1/d\omega$
3. ✔ $dT_1/d\omega > dT/d\omega$
4. ✘ $dT_1/d\omega = 2.dT/d\omega$

Question Number : 79 Question Id : 5113468719 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

In self-controlled synchronous motor, inverter frequency is determined

Options :

1. ✘ independently
2. ✔ by shaft speed
3. ✘ by grid frequency
4. ✘ arbitrarily

Question Number : 80 Question Id : 5113468720 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Compared to buck converter, boost converter requires

Options :

1. ✘ smaller filter capacitor
2. ✔ larger filter capacitor
3. ✘ equal value capacitor
4. ✘ very small capacitor

Question Number : 81 Question Id : 5113468721 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The air-gap voltage of induction motor is 108 V at 60 Hz. For operating at 40 Hz air-gap voltage is

Options :

1. ✔ 72 V
2. ✘ 62 V
3. ✘ 88 V
4. ✘ 98 V

Question Number : 82 Question Id : 5113468722 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Asynchronous PWM is used for frequency modulation index greater than

Options :

1. ✘ 11
2. ✔ 21
3. ✘ 31
4. ✘ 41

Question Number : 83 Question Id : 5113468723 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Two silicon diodes D1 and D2 are connected in series. If 1V DC is applied across it, then which of the following statement is correct?

Options :

1. ✖ Both are forward biased
2. ✖ D1 is forward biased and D2 is reverse biased
3. ✔ Both are reversed biased
4. ✖ D1 is reverse biased and D2 is forward biased

Question Number : 84 Question Id : 5113468724 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The stability factor of self biasing circuit is

Options :

1. ✖ 0
2. ✔ 1
3. ✖ 100
4. ✖ 10

Question Number : 85 Question Id : 5113468725 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which among the following is an output provided by transresistance amplifier?

Options :

1. ✖ Output current proportional to signal voltage
2. ✔ Output voltage proportional to signal current
3. ✖ Output voltage proportional to input voltage
4. ✖ Output current proportional to signal current

Question Number : 86 Question Id : 5113468726 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Another name for a unity gain amplifier is

Options :

1. ✖ difference amplifier

2. ✘ comparator
3. ✘ single ended
4. ✔ voltage follower

Question Number : 87 Question Id : 5113468727 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Op-amps used as high- and low-pass filter circuits employ which configuration?

Options :

1. ✘ non-inverting
2. ✘ comparator
3. ✘ open-loop
4. ✔ inverting

Question Number : 88 Question Id : 5113468728 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

What starts a free-running multivibrator?

Options :

1. ✘ a trigger
2. ✘ an input signal
3. ✘ an external circuit
4. ✔ nothing

Question Number : 89 Question Id : 5113468729 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The time period of a monostable 555 multivibrator is given by

Options :

1. ✘ $T = 0.33RC$
2. ✔ $T = 1.1RC$

3. ✘ $T = 3RC$

4. ✘ $T = RC$

Question Number : 90 Question Id : 5113468730 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following circuit is a Parallel-to-Serial converter?

Options :

1. ✔ Digital Counter

2. ✘ Decoder

3. ✘ Demultiplexer

4. ✘ Multiplexer

Question Number : 91 Question Id : 5113468731 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

With four Boolean variables, how many Boolean expressions can be formed?

Options :

1. ✔ 16

2. ✘ 256

3. ✘ 1024

4. ✘ 64K

Question Number : 92 Question Id : 5113468732 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

In which configuration a dead band condition occurs in Schmitt trigger

Options :

1. ✘ Differential amplifier with positive feedback

2. ✘ Voltage follower with positive feedback

3. ✔ Comparator with positive feedback

4. ✖ Comparator with negative feedback

Question Number : 93 Question Id : 5113468733 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Astable multivibrator is _____ in any state.

Options :

1. ✖ Stable
2. ✔ Unstable
3. ✖ Saturated
4. ✖ Stable & Saturated

Question Number : 94 Question Id : 5113468734 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A 4-bit R/2R digital-to-analog (DAC) converter has a reference of 5 volts. What is the analog output for the input code 0101?

Options :

1. ✖ 0.3125 V
2. ✔ 3.125 V
3. ✖ 0.78125 V
4. ✖ -3.125 V

Question Number : 95 Question Id : 5113468735 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

In 8085 which addressing mode is called inherent addressing?

Options :

1. ✖ Direct
2. ✖ Register
3. ✔ Implicit
4. ✖ Immediate

Question Number : 96 Question Id : 5113468736 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

For an SCR, gate cathode characteristic is a straight line of 130. For triggered source voltage of 15 V and allowable gate power dissipation of 0.5 W, compute the gate source resistance

Options :

1. ✓ 111.9 Ω
2. ✗ 11.19 Ω
3. ✗ 108 Ω
4. ✗ 115 Ω

Question Number : 97 Question Id : 5113468737 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

An autotransformer having a transformation ratio of 0.8 supplied a load of 20 kW. The power transferred inductively from the primary to the secondary is

Options :

1. ✗ 20 kW
2. ✗ 16 kW
3. ✓ 4 kW
4. ✗ zero

Question Number : 98 Question Id : 5113468738 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A 220 V, 50 Hz single-phase transformer has eddy current loss of 120 W. If the transformer is operated from 440 V, 50 Hz supply main then the eddy current loss will be

Options :

1. ✗ 120 W
2. ✗ 240 W
3. ✗ 360 W
4. ✓ 480 W

Question Number : 99 Question Id : 5113468739 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A lap wound dc machine has 800 conductors and 8 poles and the voltage induced per conductor is 2 V.

The machine generates a voltage of

Options :

1. ✘ 100 V
2. ✔ 200 V
3. ✘ 400 V
4. ✘ 800 V

Question Number : 100 Question Id : 5113468740 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Due to armature reaction in a D.C. generator, the flux under leading pole tip

Options :

1. ✔ always increases
2. ✘ always decreases
3. ✘ may decrease or increase
4. ✘ remains unchanged

Question Number : 101 Question Id : 5113468741 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If external resistance is added to the field of a DC shunt generator, it results in

Options :

1. ✔ decrease in the voltage of the generator
2. ✘ increase in the voltage of the generator
3. ✘ increase in the power delivered
4. ✘ increase in the speed of the generator

Question Number : 102 Question Id : 5113468742 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A 220 V dc series motor takes 25 A when giving its rated output at 1500 rpm. Its resistance is 0.3 ohms.

The value of resistance which must be added to obtain rated torque at 1000 rpm is

Options :

1. ✘ 1.9 ohms
2. ✔ 2.8 ohms
3. ✘ 3.6 ohms
4. ✘ 6 ohms

Question Number : 103 Question Id : 5113468743 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A 200 V dc shunt motor delivers an output of 17 kW with an input of 20 kW. The field resistance is 50 Ω and armature resistance is 0.2 Ω . Maximum efficiency will be obtained when the total armature copper losses are equal to

Options :

1. ✘ 357 W
2. ✔ 1156 W
3. ✘ 1843 W
4. ✘ 2643 W

Question Number : 104 Question Id : 5113468744 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A voltmeter gives 120 oscillations per minute when connected to the rotor of an induction motor. The stator frequency is 50 Hz. The slip of the motor is

Options :

1. ✘ 2%
2. ✘ 2.5%
3. ✔ 4%

4. ✘ 5%

Question Number : 105 Question Id : 5113468745 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A 3-phase, 50 Hz squirrel cage induction motor takes a power input of 30 kW at its full load speed of 1440 rpm. Total stator losses are 1 kW. The slip and rotor ohmic losses at full load are _____ respectively.

Options :

1. ✘ 0.02, 600 W
2. ✘ 0.04, 580 W
3. ✔ 0.04, 1160 W
4. ✘ 0.04, 1200 W

Question Number : 106 Question Id : 5113468746 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The starting current of an induction motor is five times the full load current while the full load slip is 4%. The ratio of starting torque to full load torque is

Options :

1. ✘ 0.6
2. ✘ 0.8
3. ✔ 1.0
4. ✘ 1.2

Question Number : 107 Question Id : 5113468747 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Power factor of a synchronous motor is unity when the armature current is

Options :

1. ✘ zero
2. ✔ minimum
3. ✘ maximum

4. ✖ any value between minimum and maximum

Question Number : 108 Question Id : 5113468748 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The speed of a 3-phase induction motor is controlled by controlling its supply frequency. If the speed of the machine is reduced by reducing the frequency by 50% of the rated frequency; to keep the flux in the machine constant, the motor voltage compared to rated voltage must be

Options :

1. ✖ increased by 25%
2. ✖ increased by 50%
3. ✔ decreased by 50%
4. ✖ decreased by 25%

Question Number : 109 Question Id : 5113468749 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A 3-phase synchronous motor is connected to an infinite bus, operates at a leading pf. For a constant load torque, if excitation is increased,

Options :

1. ✖ both load angle δ and power factor angle θ decrease
2. ✖ δ and θ increase
3. ✖ δ increases but θ decreases
4. ✔ δ decreases but θ increases

Question Number : 110 Question Id : 5113468750 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A transformer, fed from an alternator at 230 V, 50 Hz, has an eddy-current loss of 50 W and a hysteresis loss of 100 W. If the speed of the prime-mover driving the alternator drops to 80% of its previous speed, then eddy-current and hysteresis losses in the transformer would respectively be

Options :

1. ✖ 40 W, 80 W

- 2. ✓ 32 W, 80 W
- 3. ✗ 32 W, 64 W
- 4. ✗ 40 W, 64 W

Question Number : 111 Question Id : 5113468751 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If a hybrid stepper motor has a rotor pitch of 36° and a step angle of 9° , the number of its phases must be

Options :

- 1. ✓ 4
- 2. ✗ 2
- 3. ✗ 3
- 4. ✗ 6

Question Number : 112 Question Id : 5113468752 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

An SCR has half cycle surge current rating of 3000 A for 50 Hz supply. One cycle surge current will be

Options :

- 1. ✗ 1500 A
- 2. ✗ 6000 A
- 3. ✓ 2121.32 A
- 4. ✗ 4242.64 A

Question Number : 113 Question Id : 5113468753 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

An SCR is considered to be a semi controlled device because

Options :

- 1. ✗ it can be turned OFF but not ON with a gate pulse.
- 2. ✗ it conducts only during one half cycle of an alternating current wave.

3. ✓ it can be turned ON but not OFF with a gate pulse.
4. ✗ it can be turned ON only during one half cycle of an AC.

Question Number : 114 Question Id : 5113468754 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A single phase one pulse controlled circuit has a resistance R and counter emf E load $400 \sin(314 t)$ as the source voltage. For a load counter emf of 200 V, the range of firing angle control is

Options :

1. ✓ 30° to 150° .
2. ✗ 30° to 180° .
3. ✗ 60° to 120° .
4. ✗ 60° to 180° .

Question Number : 115 Question Id : 5113468755 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A single phase full bridge inverter can be operated in load commutation mode in case load consist of

Options :

1. ✗ RL.
2. ✓ RLC underdamped
3. ✗ RLC overdamped.
4. ✗ RLC critically damped.

Question Number : 116 Question Id : 5113468756 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A step up chopper has input voltage of 110 V and output voltage of 150 V. The value of duty cycle is

Options :

1. ✗ 0.32
2. ✓ 0.67

3. ✖ 0.45

4. ✖ 0.27

Question Number : 117 Question Id : 5113468757 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If holding current of a thyristor is 2 mA then latching current can be

Options :

1. ✖ 0.01A

2. ✖ 0.002A

3. ✖ 0.009A

4. ✔ 0.004A

Question Number : 118 Question Id : 5113468758 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

In reverse blocking mode of a thyristor

Options :

1. ✖ junction J_2 is in reverse bias and J_1, J_3 are in forward bias

2. ✖ junction J_3 is in forward bias and J_1, J_2 are in reverse bias.

3. ✔ junctions J_1, J_3 are in reverse bias and J_2 is in forward bias

4. ✖ junctions J_1, J_2 are in forward bias and J_3 is in reverse bias.

Question Number : 119 Question Id : 5113468759 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

For Thyristors, which type of triggering is the most reliable?

Options :

1. ✖ Forward voltage triggering

2. ✔ Gate triggering.

3. ✖ dV / dt triggering

4. ✖ Thermal triggering.

Question Number : 120 Question Id : 5113468760 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Under normal operating condition voltage clamping device offers impedance of

Options :

1. ✔ high value
2. ✖ low value.
3. ✖ zero value
4. ✖ moderate value.