Telangana State Council Higher Education

Notations :

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

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

Question Paper Name :	Electrical Engineering 1st Jun 2026 Shift 2
Subject Name :	Electrical Engineering
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Electrical Engineering

Group Number :	1
Group Id :	10513148
Group Maximum Duration :	0
Group Minimum Duration :	120
Show Attended Group? :	No
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Break time :	0
Group Marks :	120

Mathematics

Section Id :	105131105
Section Number :	1
Section type :	Online

Mandatory or Optional :	Mandatory
Number of Questions :	10
Number of Questions to be attempted :	10
Section Marks :	10
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	105131105
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 1051316121 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $A=\begin{bmatrix}1 & 1 & 2\\ 2 & 5 & 4\\ 1 & 0 & 5\end{bmatrix}$, then determinant of $\left(A^{2026}-11A^{2025}-9A^{2023}\right)=$

Options :

1. ✖ 9^{2026}

2. ✖ $(-31)^3\,3^{2025}$

3. ✔ $(-31)^3\,3^{4048}$

4. ✖ $(31)^4\,3^{4048}$

Question Number : 2 Question Id : 1051316122 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

An Eigen value of the matrix $\begin{bmatrix}1 & -1 & 2\\ 0 & 1 & 0\\ 1 & 2 & 1\end{bmatrix}$ is 1. An eigen vector corresponding to it is

Options :

1. ✖ $\begin{bmatrix}3\\ 2\\ 0\end{bmatrix}$

2. ✖ $\begin{bmatrix} 4 \\ 2 \\ -1 \end{bmatrix}$

3. ✔ $\begin{bmatrix} -4 \\ 2 \\ 1 \end{bmatrix}$

4. ✖ $\begin{bmatrix} 3 \\ 2 \\ \frac{1}{2} \end{bmatrix}$

Question Number : 3 Question Id : 1051316123 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $z = x^2y + e^{xy^2}$, then $\left(\frac{\partial^2 z}{\partial x^2} + \frac{\partial^2 z}{\partial x \partial y}\right)$ at $(1,0)$ is

Options :

1. ✖ 0

2. ✖ 1

3. ✔ 2

4. ✖ -2

Question Number : 4 Question Id : 1051316124 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $f(x)=x^3,\ 0\le x\le 4,\ f(x+4)=f(x)\ \forall\ x\in\mathbb{R}$ and the Fourier series of $f(x)$ is $f(x)=\sum_{n=0}^{\infty}\left(a_n\cos\frac{n\pi x}{2}+b_n\sin\frac{n\pi x}{2}\right)$, then $a_0=$

Options :

1. ✖ 8

2. ✖ 32

3. ✔ 16

4. ✖ 24

Question Number : 5 Question Id : 1051316125 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The particular integral of $\left(D^4-D^3-9D^2-11D-4\right)y=e^{-x},\ D=\frac{d}{dx}$ is

Options :

1. ✖ $-\frac{x^2e^{-x}}{20}$

2. ✖ $-\frac{xe^{-x}}{15}$

3. ✔ $-\frac{x^3e^{-x}}{30}$

4. ✖ $-\frac{e^{-x}}{10}$

Question Number : 6 Question Id : 1051316126 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The solution of $\frac{\partial^2 z}{\partial x^2}+z=0$, satisfying $z(0,y)=e^y$, $\left(\frac{\partial z}{\partial x}\right)_{x=0}=1$ is $z(x,y)=$

Options :

1. ✖ $e^{y}\sin x+\cos x$

2. ✖ $\sin x+e^{y}e^{x}\cos x$

3. ✔ $e^{y}\cos x+\sin x$

4. ✖ $e^{y}\cos x+y\sin x$

Question Number : 7 Question Id : 1051316127 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Let $r=\text{Min}\{\alpha,\beta,\gamma\}$, $R=\text{Max}\{\alpha,\beta,\gamma\}$, $f(z)=\dfrac{z}{(z-\alpha)(z-\beta)(z-\gamma)}$. $I_1=\int\limits_{C_1} f(z)dz$ and

$I_2=\int\limits_{C_2} f(z)dz$, where $C_1:|z|<r$ and $C_2:|z|=R+1$, then $I_1+I_2=$

Options :

1. ✖ $2\pi i$

2. ✔ 0

3. ✖ πi

4. ✖ $-\pi i$

Question Number : 8 Question Id : 1051316128 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The inverse Laplace transform of $\dfrac{s+3}{s^2-4s+13}$ is

Options :

1. ✖ $e^{2t}\left[\cos 2t+3\sin 2t\right]$

2. ✔

$\frac{e^{2t}}{3}[3\cos 3t+5\sin 3t]$

3. ✖ $e^{2t}[t+3\sin 3t]$

4. ✖ $\frac{e^{2t}}{5}[5\cos 3t+3\sin 3t]$

Question Number : 9 Question Id : 1051316129 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose a possible probability density function from the given functions

Options :

1. ✖ $f(x)=\begin{cases}1, & 0\le x\le 2\\ 0, & \text{otherwise}\end{cases}$

2. ✔ $f(x)=\begin{cases}e^{-x}, & x\ge 0\\ 0, & x<0\end{cases}$

3. ✖ $f(x)=\begin{cases}\frac{6}{5}x(1+x), & x\ge 0\\ 0, & x<0\end{cases}$

4. ✖ $f(x)=\begin{cases}x(1-x), & 0\le x\le 1\\ 0, & \text{elsewhere}\end{cases}$

Question Number : 10 Question Id : 1051316130 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The iterative formula for finding the approximate root of $f(x)=0$ using Newton-Raphson method is

Options :

1. ✔

$$x_n = x_{n-1} - \frac{f(x_{n-1})}{f'(x_{n-1})}$$

2. ✖ $x_n = x_{n+1} + hf(x_n, y_n)$

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

4. ✖ $x_n = \frac{x_{n-1}f(x_{n-2}) - x_{n-2}f(x_{n-1})}{f(x_{n-1}) - f(x_{n-2})}$

Electrical Engineering

Section Id :	105131106
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	110
Number of Questions to be attempted :	110
Section Marks :	110
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	105131106
Question Shuffling Allowed :	Yes

Question Number : 11 Question Id : 1051316131 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The work done by the force $F = 4a_x - 3a_y + 2a_z$ N in giving a 1nC charge a displacement of $10a_x + 2a_y - 7a_z$ m is

Options :

1. ✖ 103 nJ

2. ✔ 20 nJ

3. ✖ 64 nJ

4. ✖ 60 nJ

Question Number : 12 Question Id : 1051316132 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The superposition theorem is essentially based on the concept of

Options :

1. ✖ duality

2. ✖ reciprocity

3. ✖ non-linearity

4. ✔ linearity

Question Number : 13 Question Id : 1051316133 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

When both the number of turns and the core length of an inductive coil are doubled, its self-inductance will be

Options :

1. ✖ halved

2. ✖ unaffected

3. ✖ quadrupled

4. ✔ doubled

Question Number : 14 Question Id : 1051316134 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The magnetic susceptibility of diamagnetic materials is

Options :

1. ✖ Much more than zero

2. ✔ Less than zero

3. ✖ Equal to zero

4. ✖ Infinite

Question Number : 15 Question Id : 1051316135 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Two thin parallel wires carry currents along the same direction. The force experienced by one due to the other is

Options :

1. ✔ Perpendicular to the lines and attractive

2. ✖ Perpendicular to the lines and repulsive

3. ✖ Zero

4. ✖ Parallel to the lines

Question Number : 16 Question Id : 1051316136 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The surface integral of the normal component of electric flux density over any closed surface is equal to the following enclosed.

Options :

1. ✖ current

2. ✔ charge

3. ✖ voltage

4. ✖ power

Question Number : 17 Question Id : 1051316137 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Identify the statement that is not true for ferromagnetic material

Options :

1. ✖ They have large magnetic susceptibility

2. ✔ They have a fixed value of relative permeability

3. ✖ Energy loss is proportional to the area of the hysteresis loop

4. ✖ Above curie temperature, they lose their non-linearity property

Question Number : 18 Question Id : 1051316138 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The dipole moment per unit volume is known as

Options :

1. ✖ Dielectric constant

2. ✔ Polarization

3. ✖ Capacitance

4. ✖ Permittivity

Question Number : 19 Question Id : 1051316139 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

At resonance, voltage across L and C in series circuit is

Options :

1. ✔ equal and opposite

2. ✖ unity

3. ✖ infinite

4. ✖ zero

Question Number : 20 Question Id : 1051316140 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose the correct statement

Options :

1. ✔ Capacitor behaves like a short circuit at very high frequency and inductor behaves like a short circuit at very low frequency

2. ✖ Capacitor behaves like an open circuit at very high frequency and inductor behaves like a short circuit at very low frequency

3. ✖ Capacitor behaves like a short circuit at very high frequency and inductor behaves like an open circuit at very low frequency

4. ✖ Capacitor behaves like an open circuit at very high frequency and inductor behaves like an open circuit at very low frequency

Question Number : 21 Question Id : 1051316141 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If all resistances in delta are equal to 30 Ω, then each resistance in star is

Options :

1. ✖ 30 Ω

2. ✖ 90 Ω

3. ✔ 10 Ω

4. ✖ 900 Ω

Question Number : 22 Question Id : 1051316142 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Phasor analysis is valid for

Options :

1. ✖ Transient signals

2. ✔ Steady state sinusoidal signals

3. ✖ Any type of signals

4. ✖ DC signals

Question Number : 23 Question Id : 1051316143 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose the correct statement

Options :

1. ✖ The magnetic dipole moment is the sum of current and area of the loop, its direction is normal to the loop

2. ✖ The magnetic dipole moment is the product of current and area of the loop, it has no direction

3. ✔ The magnetic dipole moment is the product of current and area of the loop, its direction is normal to the loop

4. ✖ The magnetic dipole moment is the sum of current and volume of the loop, its direction is normal to the loop

Question Number : 24 Question Id : 1051316144 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

At resonance, power factor in a parallel RLC circuit is

Options :

1. ✔ Unity

2. ✖ Zero

3. ✖ Infinite

4. ✖ 0.5

Question Number : 25 Question Id : 1051316145 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Thevenin equivalent of a circuit consists of

Options :

1. ✖ Current source and series resistance

2. ✖ Voltage source and series capacitance

3. ✔ Voltage source and series resistance

4. ✖ Current source and series capacitance

Question Number : 26 Question Id : 1051316146 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The varying electric fields are a source of

Options :

1. ✔ Displacement current

2. ✖ Conduction current

3. ✖ Convection current

4. ✖ Both conduction and convection current

Question Number : 27 Question Id : 1051316147 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Form factor of a sine wave is

Options :

1. ✖ 0.75

2. ✖ 0.65

3. ✖ 0.50

4. ✔ 1.11

Question Number : 28 Question Id : 1051316148 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Internal resistance of ideal current source is

Options :

1. ✖ Zero

2. ✔ Infinity

3. ✖ Unity

4. ✖ 100

Question Number : 29 Question Id : 1051316149 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The efficiency of a circuit at maximum power transfer condition is

Options :

1. ✖ 100%

2. ✔ 50%

3. ✖ 25%

4. ✖ 75%

Question Number : 30 Question Id : 1051316150 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a two wattmeter method, if one wattmeter reads negative then

Options :

1. ✖ Power factor > 0.5

2. ✖ Power factor =1

3. ✔ Power factor < 0.5

4. ✖ Zero power factor

Question Number : 31 Question Id : 1051316151 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The copper and iron losses of a 1-ϕ transformer are equal at 90% of full load and its value is 162 W. The total loss at 80% of full load is

Options :

1. ✔ 145 W

2. ✖ 244 W

3. ✖ 128 W

4. ✖ 153 W

Question Number : 32 Question Id : 1051316152 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In an ideal transformer, which of the following is correct?

Options :

1. ✖ $\left(\frac{V_1}{V_2}\right)=\left(\frac{I_1}{I_2}\right)=\left(\frac{N_1}{N_2}\right)$

2. ✖ $\left(\frac{V_1}{V_2}\right)=\left(\frac{I_2}{I_1}\right)=\left(\frac{N_2}{N_1}\right)$

3. ✔ $\left(\frac{V_1}{V_2}\right)=\left(\frac{I_2}{I_1}\right)=\left(\frac{N_1}{N_2}\right)$

4. ✖ $\left(\frac{V_2}{V_1}\right)=\left(\frac{I_1}{I_2}\right)=\left(\frac{N_1}{N_2}\right)$

Question Number : 33 Question Id : 1051316153 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In delta-star connection, the phase displacement between the primary voltage and secondary emfs is

Options :

1. ✔ $30°$

2. ✖ $-60°$

3. ✖ $60°$

4. ✖ $-30°$

Question Number : 34 Question Id : 1051316154 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A transformer has full load copper loss of 400 W. The copper loss at half full load will be

Options :

1. ✖ 400 W

2. ✖ 200 W

3. ✖ 300 W

4. ✔ 100 W

Question Number : 35 Question Id : 1051316155 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The load current of a step down 250/200 V auto-transformer is 100 A. The conductive and inductive powers transformed are

Options :

1. ✖ 4 kVA and 20 kVA

2. ✖ 4 kVA and 16 kVA

3. ✔ 16 kVA and 4 kVA

4. ✖ 20 kVA and 4 kVA

Question Number : 36 Question Id : 1051316156 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The eddy current loss and hysteresis loss of 1-ϕ, 100 kVA, 50 Hz transformer are 4 kW and 6 kW respectively. If frequency is increased by 10%, then total loss is

Options :

1. ✔ 11.44 kW

2. ✖ 11.66 kW

3. ✖ 11.00 kW

4. ✖ 12.10 kW

Question Number : 37 Question Id : 1051316157 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a wave winding, if y_b and y_c are back and commutator pitches respectively, then the front pitch y_f is given by

Options :

1. ✖ $y_f = 2y_b + y_c$

2. ✔ $y_f = 2y_c - y_b$

3. ✖ $y_f = 2y_b - y_c$

4. ✖ $y_f = 2y_c + y_b$

Question Number : 38 Question Id : 1051316158 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A DC generator with 8-pole, 480 armature conductors, wave winding, draws an armature current of 200 A. When brushes are shifted by 6° electrical from GNP, the cross-magnetising amp-turn/pole is

Options :

1. ✖ 2200

2. ✖ 200

3. ✖ 800

4. ✔ 2800

Question Number : 39 Question Id : 1051316159 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

To control voltage of a long shunt dc compound generator, a diverter resistance is connected across

Options :

1. ✖ shunt and series field windings

2. ✔ series field winding

3. ✖ shunt field winding

4. ✖ series field and armature winding

Question Number : 40 Question Id : 1051316160 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

When load current of a dc series motor is increased, then

Options :

1. ✔ speed decreases non-linearly and torque increases non-linearly

2. ✖ flux increases non-linearly and torque increases linearly

3. ✖ speed decreases linearly and torque increases non-linearly

4. ✖ flux increases linearly and torque increases non-linearly

Question Number : 41 Question Id : 1051316161 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The disadvantage of Hopkinson's test on two dc shunt machines is

Options :

1. ✖ copper and iron losses are assumed equal

2. ✖ requires two unidentical machines

3. ✔ iron and mechanical losses are assumed equal

4. ✖ iron and mechanical losses are assumed unequal

Question Number : 42 Question Id : 1051316162 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Slope of the tangent drawn on initial portion of O.C.C of synchronous generator is

Options :

1. ✖ Unsaturated synchronous resistance

2. ✖ Saturated synchronous impedance

3. ✖ Critical resistance

4. ✔ Unsaturated synchronous impedance

Question Number : 43 Question Id : 1051316163 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the locus of minimum armature currents of V-curves of synchronous motor is a straight line, then the slope of the line is

Options :

1. ✔ positive

2. ✖ negative

3. ✖ zero

4. ✖ infinite

Question Number : 44 Question Id : 1051316164 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If δ is load angle, the real power of 3-ϕ synchronous motor is

Options :

1. ✖ directly proportional to δ

2. ✔

directly proportional to sinδ

3. ✖ inversely proportional to sinδ

4. ✖ inversely proportional to δ

Question Number : 45 Question Id : 1051316165 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Speed of a 3-ϕ, 4-pole, 60 Hz induction motor at 75% of full-load is 1700 rpm. The speed at full-load can be

Options :

1. ✖ 1750 rpm

2. ✖ 1800 rpm

3. ✖ 1700 rpm

4. ✔ 1600 rpm

Question Number : 46 Question Id : 1051316166 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Frequency of rotor current of a 3-ϕ, 4-pole, 50 Hz induction motor is 3 Hz. Speed of the motor is

Options :

1. ✖ 1425 rpm

2. ✖ 1497 rpm

3. ✖ 1455 rpm

4. ✔ 1410 rpm

Question Number : 47 Question Id : 1051316167 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

When the supply voltage to an induction motor is reduced by 10%, the maximum torque will be decreased approximately by

Options :

1. ✖ 5%

2. ✖ 10%

3. ✖ 20%

4. ✔ 40%

Question Number : 48 Question Id : 1051316168 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Two 3-ϕ induction motors with p_1 and p_2 poles are cascaded together. Then the possible number of speeds are

Options :

1. ✖ two

2. ✖ one

3. ✔ four

4. ✖ three

Question Number : 49 Question Id : 1051316169 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In torque-slip curve of a 1-ϕ induction motor, the backward torque is

Options :

1. ✖ negative from slip s=0 to s=1 and positive from slip s=1 to s=2

2. ✔ negative from slip s=0 to s=2

3. ✖ negative from slip s=0.5 to s=1.5

4. ✖ negative from slip s=1 to s=2 and positive from slip s=0 to s=1

Question Number : 50 Question Id : 1051316170 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The step angle of a 3-ϕ (A, B, C), 6 stator pole, 4 rotor teeth stepper motor if excited sequentially i.e, A, AB, B, BC, C, CA, and so on is

Options :

1. ✖ 3.75°

2. ✖ 30°

3. ✔ 15°

4. ✖ 7.5°

Question Number : 51 Question Id : 1051316171 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is the VA output required for a CT of 5 A rated secondary current when burden consists of a relay requiring 7.5 VA at 5 A and connecting lead resistance of 0.08 ohm?

Options :

1. ✖ 7.5 VA

2. ✖ 15.0 VA

3. ✔ 9.5 VA

4. ✖ 1.3 VA

Question Number : 52 Question Id : 1051316172 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In which relay, the relay operation depends upon the ratio of voltage to current?

Options :

1. ✖ directional

2. ✖ differential

3. ✔ distance

4. ✖ reverse

Question Number : 53 Question Id : 1051316173 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Resistance switching is used in circuit breaker to

Options :

1. ✖ decrease the restriking voltage and increase the severity of transient oscillations

2. ✖ increase the severity of transient oscillations and the severity of transients

3. ✔ Reduce the restriking voltage and severity of transient oscillations

4. ✖ increase the restriking voltage and reducing the severity of transient oscillations

Question Number : 54 Question Id : 1051316174 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

For an n^{th} order system to be state controllable, which of the following is not a correct statement?

Options :

1. ✖ The controllability matrix must be of rank n

2. ✖ The controllability matrix must contain n linearly independent column vectors

3. ✔ The controllability matrix must contain n linearly dependent column vectors

4. ✖ The determinant of controllability matrix is not singular

Question Number : 55 Question Id : 1051316175 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A generating station has a maximum demand of 25 MW, a load factor of 60%, a plant capacity factor of 50 %. What is the reserve capacity of the plant?

Options :

1. ✖ 25 MW

2. ✖ 15 MW

3. ✖ 7.5 MW

4. ✔ 5 MW

Question Number : 56 Question Id : 1051316176 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The current densities in human bodies lie in the proximity of the transmission line are

Options :

1. ✖ induced by electric fields are much lower than those induced by magnetic fields

2. ✖ induced by electric fields only

3. ✔ induced by electric fields are much higher than those induced by magnetic fields

4. ✖ induced by magnetic field only

Question Number : 57 Question Id : 1051316177 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The characteristics of rate of convergence of Gauss -Siedel method and Newton Raphson method respectively are

Options :

1. ✖ linear, linear

2. ✖ quadratic, quadratic

3. ✖ quadratic, linear

4. ✔ linear, quadratic

Question Number : 58 Question Id : 1051316178 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In case of the compensation of the power transmission lines, for the same voltage boost, the reactive power capacity of a shunt capacitor is _____ that of a series capacitor

Options :

1. ✖ equal to

2. ✔ greater than

3. ✖ lesser than

4. ✖ 0.0001 times

Question Number : 59 Question Id : 1051316179 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Under steady state short circuit conditions, the armature reaction of a synchronous generator is

Options :

1. ✖ Cross-magnetizing

2. ✔ Demagnetizing

3. ✖ Magnetizing

4. ✖ Partially cross-magnetizing

Question Number : 60 Question Id : 1051316180 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A fully transposed transmission line has

Options :

1. ✔ Zero sequence impedance larger than the positive sequence impedance

2. ✖ Zero sequence impedance smaller than the positive sequence impedance

3. ✖ Zero sequence impedance equal to positive sequence impedance

4. ✖ Positive sequence impedance is larger than the negative sequence impedance

Question Number : 61 Question Id : 1051316181 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The swing equation of a synchronous generator is

Options :

1. ✖ Linear, second order differential equation

2. ✔ Non-linear, second order differential equation

3. ✖ Non-linear, second order algebraic equation

4. ✖ Non-linear, first order differential equation

Question Number : 62 Question Id : 1051316182 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In nuclear reactors, the most commonly used neutron absorber is

Options :

1. ✖ Uranium

2. ✖ Hydrogen

3. ✔ Boron

4. ✖ Oxygen

Question Number : 63 Question Id : 1051316183 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The insulation resistance of a single core cable is 160 MΩ/km. The insulation resistance for 4 km length is

Options :

1. ✖ 640 MΩ

2. ✖ 160 MΩ

3. ✔ 40 MΩ

4. ✖ 80 MΩ

Question Number : 64 Question Id : 1051316184 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The insulators used in transmission lines at river and road crossing are

Options :

1. ✔ Strain type

2. ✖ Suspension type

3. ✖ Pin type

4. ✖ Cup type

Question Number : 65 Question Id : 1051316185 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The effect of increase in temperature on transmission lines

Options :

1. ✖ Sag and tension of conductor decreases

2. ✖ Sag and tension of conductor increases

3. ✔ Sag increases and tension of the conductor decreases

4. ✖ Sag decreases and tension of the conductor increases

Question Number : 66 Question Id : 1051316186 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In distribution systems, the size of conductor is determined by using

Options :

1. ✖ Faraday's law

2. ✔ Kelvin's law

3. ✖ Ohm's law

4. ✖ Kirchhoff's law

Question Number : 67 Question Id : 1051316187 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Bonding of the cable is done to

Options :

1. ✖ Decrease the effective R and L

2. ✖ Increase the effective R and L

3. ✖ Decrease the effective R but increase L

4. ✔ Increase the effective R but reduce L

Question Number : 68 Question Id : 1051316188 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The most frequently occurred fault in the power system is

Options :

1. ✖ L-L-G

2. ✖ L-L

3. ✖ L-L-L

4. ✔ L-G

Question Number : 69 Question Id : 1051316189 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The transfer function model of a system is the reshaping of the differential equations of which type of system?

Options :

1. ✖ linear time varying

2. ✔ linear time invariant

3. ✖ non-linear time invariant

4. ✖ non-linear time varying

Question Number : 70 Question Id : 1051316190 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The per unit value of a 2 Ω resistor at 100 MVA base and 10 kV base voltage is

Options :

1. ✔ 2

2. ✖ 4

3. ✖ 0.5

4. ✖ 0.2

Question Number : 71 Question Id : 1051316191 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Match the following electrical system with mechanical system based on current-force analogy

Electrical System		Mechanical system	
A	Voltage	I	displacement
B	flux linkages	II	Moment of inertia
C	capacitance	III	torque
		IV	angular velocity

Options :

1. ✔ A – IV, B – I, C – II

2. ✖ A – I, B – II, C – III

3. ✖ A – III, B – IV, C – II

4. ✖ A – II, B – I, C – IV

Question Number : 72 Question Id : 1051316192 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Compared with an induction motor, AC servo motor speed-torque characteristics and X/R ratio respectively are

Options :

1. ✖ nearly linear, large

2. ✖ more non-linear, large

3. ✔ nearly linear, small

4. ✖ more non-linear, small

Question Number : 73 Question Id : 1051316193 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The steady-state error of Type-2 system for a standard unit velocity input is

Options :

1. ✖ $\frac{1}{(1+K_v)}$

2. ✖ ∞

3. ✖ $\frac{1}{K_v}$

4. ✔ 0

Question Number : 74 Question Id : 1051316194 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The centroid of the following system is

$$G(s)H(s) = \frac{K(s+10)(s+20)}{s^3(s+100)(s+800)}$$

Options :

1. ✖ 290

2. ✔ −290

3. ✖ 310

4. ✖ −310

Question Number : 75 Question Id : 1051316195 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

For the following system, the angles of asymptotes are

$$G(s)H(s)=\frac{K}{s(s^2+2s+1)}$$

Options :

1. ✖ $45°, 135°, 225°$

2. ✖ $60°, 120°, 180°$

3. ✔ $60°, 180°, 300°$

4. ✖ $60°, 150°, 240°$

Question Number : 76 Question Id : 1051316196 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Natural frequency of oscillations of the following transfer function is

$$\frac{C(s)}{R(s)}=\frac{1}{(s^2+0.5s+1)}$$

Options :

1. ✖ $\omega_n=0.5$

2. ✖ $\omega_n=2$

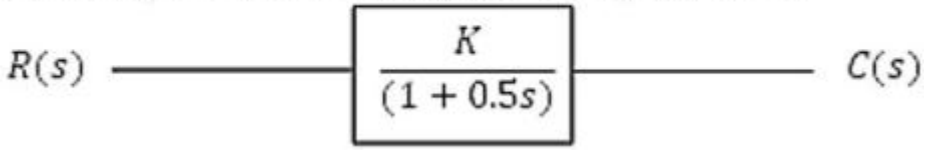
3. ✖ $\omega_n=0.25$

4. ✔ $\omega_n=1$

Question Number : 77 Question Id : 1051316197 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Sensitivity of the following open loop system is



Options :

1. ✔ 1

2. ✖ 2/3

3. ✖ 0.5

4. ✖ 3/2

Question Number : 78 Question Id : 1051316198 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following pair of electro-mechanical devices are part of Synchro?

Options :

1. ✖ AC tacho generator and Transmitter

2. ✔ Transmitter and Control transformer

3. ✖ Control transformer and Receiver

4. ✖ Receiver and AC tacho generator

Question Number : 79 Question Id : 1051316199 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Choose the correct statement with reference to standard test signals

Options :

1. ✖ Unit impulse signal is obtained by integrating unit step signal

2. ✖ Unit step signal is obtained by differentiating unit impulse signal

3. ✖ Unit ramp signal is obtained by differentiating unit step signal

4. ✔ Unit parabolic signal is obtained by integrating unit ramp signal

Question Number : 80 Question Id : 1051316200 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Time constant of a first order unit step input system is defined as the time at which unit step response reaches

Options :

1. ✔ 63.2% of steady state value

2. ✖ 66.7% of steady state value

3. ✖ 36.8% of steady state value

4. ✖ 33.3% of steady state value

Question Number : 81 Question Id : 1051316201 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Steady-state error of the following second order system for a unit ramp input is

$$\frac{C(s)}{R(s)} = \frac{\omega_n^2}{(s^2 + 2\delta\omega_n s + \omega_n^2)}$$

Options :

1. ✖ $\frac{\delta}{2\omega_n}$

2. ✔ $\frac{2\delta}{\omega_n}$

3. ✖ $\frac{2\delta}{\omega_n^2}$

4. ✖

$$\frac{\delta}{2\omega_n^2}$$

Question Number : 82 Question Id : 1051316202 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

For the given open loop system, the poles of unity feed-back closed loop system are

$$G(s)=\frac{1}{(s+2)(s+4)}$$

Options :

1. ✖ $-3, 3$

2. ✖ $-1, -3$

3. ✔ $-3, -3$

4. ✖ $1, 3$

Question Number : 83 Question Id : 1051316203 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Feeding the distributor at more than one point

Options :

1. ✔ reduces the power loss in the distributor

2. ✖ reduces the efficiency of the distributor

3. ✖ increases the power loss in the distributor

4. ✖ increases the total voltage drop in the distributor

Question Number : 84 Question Id : 1051316204 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The state equation of a dynamical system is: $\dot{X} = AX + Bu$, where [A] is a 3×3 system matrix and [B] is a 3×1 input matrix. Then the controllability matrix Q_c is

Options :

1. ✔ $Q_c = [B | AB | A^2B]$

2. ✖ $Q_c = [A | AB | A^2B]$

3. ✖ $Q_c = [B | AB | B^2A]$

4. ✖ $Q_c = [A | AB | B^2A]$

Question Number : 85 Question Id : 1051316205 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If transfer function of a controller is given by: $G_C(s) = \frac{(K_1 s^2 + K_2 s + K_3)}{s}$, then the proportional, integral and derivative constants are

Options :

1. ✖ K_1, K_2 and K_3 respectively

2. ✖ K_3, K_2 and K_1 respectively

3. ✖ K_2, K_1 and K_3 respectively

4. ✔ K_2, K_3 and K_1 respectively

Question Number : 86 Question Id : 1051316206 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following bridge is not used for the measurement of capacitance?

Options :

1. ✖ Schering bridge

2. ✗ Wein's bridge

3. ✗ De Sauty's bridge

4. ✓ Hay's bridge

Question Number : 87 Question Id : 1051316207 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

An energy meter makes 600 revolutions per kWh. If it makes 300 revolutions in 30 minutes, then the load power is

Options :

1. ✗ 0.5 kW

2. ✓ 1 kW

3. ✗ 2 kW

4. ✗ 3 kW

Question Number : 88 Question Id : 1051316208 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Resolution of a 3½ digit DVM is

Options :

1. ✗ $\frac{1}{100}$

2. ✗ $\frac{1}{1000}$

3. ✓ $\frac{1}{2000}$

4. ✗ $\frac{1}{10000}$

Question Number : 89 Question Id : 1051316209 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A DC potentiometer has a potential gradient of 20 mV/cm. The balancing lengths for a standard cell and an unknown voltage are 75 cm and 120 cm respectively. If the standard cell voltage is 1.50 V, then the unknown voltage is

Options :

1. ✖ 1.80 V

2. ✖ 2.00 V

3. ✔ 2.40 V

4. ✖ 3.20 V

Question Number : 90 Question Id : 1051316210 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A PMMC instrument has full-scale deflection current of 50 μA and coil resistance of 1 kΩ. The resistance to be added in series to convert it into 10 V voltmeter is

Options :

1. ✖ 99 kΩ

2. ✔ 199 kΩ

3. ✖ 9 kΩ

4. ✖ 1 MΩ

Question Number : 91 Question Id : 1051316211 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A moving-iron voltmeter reads correctly on DC. If connected to a 50 Hz sinusoidal AC source whose RMS value equals the DC value, then the reading will be

Options :

1. ✗ greater than the DC reading

2. ✗ less than the DC reading

3. ✓ same as the DC reading

4. ✗ zero

Question Number : 92 Question Id : 1051316212 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A current transformer has ratio 500/5. If the burden is 2 VA at rated secondary current, the corresponding burden impedance is

Options :

1. ✓ 0.08 Ω

2. ✗ 0.4 Ω

3. ✗ 0.8 Ω

4. ✗ 2.0 Ω

Question Number : 93 Question Id : 1051316213 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A digital frequency meter counts 5000 pulses during a gate time of 0.1 s. The measured frequency is

Options :

1. ✗ 500 Hz

2. ✗ 5 kHz

3. ✓ 50 kHz

4. ✗ 500 kHz

Question Number : 94 Question Id : 1051316214 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

An analog instrument has a specified accuracy of ±1% of full-scale reading. If its full-scale value is 300 V and it reads 120 V, the maximum percentage error with respect to the indicated reading is

Options :

1. ✖ 1%

2. ✖ 1.5%

3. ✔ 2.5%

4. ✖ 5%

Question Number : 95 Question Id : 1051316215 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A strain gauge has gauge factor 2.1 and nominal resistance 120 Ω. If it is subjected to a strain of 1000 με, the change in resistance is

Options :

1. ✖ 0.126 Ω

2. ✔ 0.252 Ω

3. ✖ 0.504 Ω

4. ✖ 1.20 Ω

Question Number : 96 Question Id : 1051316216 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A silicon diode has a reverse saturation current of 10^{-12} A at 300 K. The approximate increase in temperature such that saturation current doubles is

Options :

1. ✖ 5°C

2. ✔ 10°C

3. ✖ 15°C

4. ✖ 20°C

Question Number : 97 Question Id : 1051316217 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A BJT in CE mode has $\beta=120$ and collector current $I_C=2.4$ mA. The small-signal transconductance at room temperature ($V_T \approx 25$ mV) is approximately

Options :

1. ✖ 0.024 S

2. ✖ 0.048 S

3. ✔ 0.096 S

4. ✖ 0.12 S

Question Number : 98 Question Id : 1051316218 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The transconductance of MOSFET in saturation is

Options :

1. ✖ $k\,(V_{GS}-V_T)$

2. ✔ $2k\,(V_{GS}-V_T)$

3. ✖ kV_{DS}

4. ✖ Constant

Question Number : 99 Question Id : 1051316219 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A phase shift oscillator requires minimum gain of

Options :

1. ✖ 1

2. ✖ 10

3. ✔ 29

4. ✖ 100

Question Number : 100 Question Id : 1051316220 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

An op-amp with slew rate 0.5 V/μs is used to generate a sine wave of amplitude 10 V. Maximum frequency without distortion is approximately

Options :

1. ✔ 8 kHz

2. ✖ 16 kHz

3. ✖ 32 kHz

4. ✖ 50 kHz

Question Number : 101 Question Id : 1051316221 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A first-order high-pass RC filter has cutoff frequency fc=1 kHz. If the magnitude of the transfer function is measured at f=500 Hz, the gain magnitude is

Options :

1. ✖ 0.25

2. ✔ 0.45

3. ✖ 0.71

4. ✖ 0.89

Question Number : 102 Question Id : 1051316222 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A synchronous 3-bit binary counter is currently in state $Q_2Q_1Q_0$=101. After two clock pulses, its state will be

Options :

1. ✔ 111

2. ✖ 000

3. ✖ 001

4. ✖ 010

Question Number : 103 Question Id : 1051316223 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A 4-variable Boolean function is implemented using an 8:1 multiplexer. Three variables are used as select lines, and the remaining variable is connected appropriately to the data inputs. The minimum number of 8:1 multiplexers required to realize any arbitrary 4-variable Boolean function is

Options :

1. ✔ 1

2. ✖ 2

3. ✖ 4

4. ✖ 8

Question Number : 104 Question Id : 1051316224 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Resolution of an 8-bit ADC with 5V reference is

Options :

1. ✖ 5 V

2. ✖ 2.5 V

3. ✔ 19.5 mV

4. ✖ 39 mV

Question Number : 105 Question Id : 1051316225 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

An 8085 microprocessor executes an instruction in 4 machine cycles containing 4, 3, 3, and 3 T-states respectively. If the clock frequency is 3 MHz, the execution time is approximately

Options :

1. ✖ 3.33 μs

2. ✔ 4.33 μs

3. ✖ 4.67 μs

4. ✖ 13.33 μs

Question Number : 106 Question Id : 1051316226 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The slip of a 3-ϕ, 50 Hz, induction motor fed by 3-ϕ, 50 Hz inverter is 's' at fundamental frequency. At 5^{th} harmonic frequency, the harmonic slip is nearly equal to

Options :

1. ✖ 5s

2. ✖ $\frac{s}{5}$

3. ✔ 1.2

4. ✖ 1

Question Number : 107 Question Id : 1051316227 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A 3-ϕ, 50 Hz synchronous motor is to be operated at constant flux by frequency control. If frequency is decreased by 4% of rated frequency at the same flux, then the voltage should be

Options :

1. ✔ Decreased by 4%

2. ✖ Increased by 4%

3. ✖ Neither increased nor decreased

4. ✖ Increased by 4.5%

Question Number : 108 Question Id : 1051316228 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A power diode is open circuited, and a reverse dc voltage is applied to get a faster turn-off time. During reverse recovery time

(a) When current is negative peak, voltage is zero
(b) When voltage is negative peak, current is zero
(c) When current is negative peak, voltage is not zero
(d) When voltage is negative peak, current is not zero

Choose the correct answer

Options :

1. ✖ (a) true, (c) true and (d) true

2. ✖ (b) true, (c) true and (d) false

3. ✖ (b) false, (c) false and (d) true

4. ✔ (a) true, (c) false and (d) true

Question Number : 109 Question Id : 1051316229 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Power MOSFETs are extremely popular in

Options :

1. ✔ Low voltage, low power and high frequency applications

2. ✖ Low voltage, high power and high frequency applications

3. ✖ High voltage, high power and low frequency applications

4. ✖ High voltage, low power and low frequency applications

Question Number : 110 Question Id : 1051316230 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In IGBT an improved Miller feedback effect is seen (compared with MOSFET) because, ratio of gate-collector capacitance to gate-emitter capacitance is

Options :

1. ✖ Unity

2. ✔ Lower

3. ✖ Higher

4. ✖ Very large

Question Number : 111 Question Id : 1051316231 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In the first quadrant of V-I characteristics of Uni-Junction Transistor, the slopes of characteristic are in the following sequence

Options :

1. ✖ Negative, zero, positive, zero and negative

2. ✔ Positive, zero, negative, zero and positive

3. ✖ Positive, zero, negative, zero and negative

4. ✖ Negative, zero, positive, zero and positive

Question Number : 112 Question Id : 1051316232 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The triggering pulses for 1-ϕ, full wave converter using Zero Crossing Detector, pulse amplifier and gate pulse isolation transformer, are obtained during

Options :

1. ✖ Ramp voltage with negative slope is less than control dc voltage

2. ✖ Ramp voltage with negative slope is more than control dc voltage

3. ✔ Ramp voltage with positive slope is more than control dc voltage

4. ✖ Ramp voltage with positive slope is less than control dc voltage

Question Number : 113 Question Id : 1051316233 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A 3-ϕ semi-converter with R-L load consists of _____ diodes and operates in _____

Options :

1. ✖ 4, four quadrants

2. ✖ 3, four quadrants

3. ✗ 4, one quadrant

4. ✓ 3, one quadrant

Question Number : 114 Question Id : 1051316234 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A 3-ϕ fully controlled converter can be operated as a semi-converter, if

(a) One of the input ac supplies is disconnected and the thyristors connected to it are triggered at 180 degrees.

(b) One of the input ac supplies is disconnected and the thyristors connected to it are triggered at zero degrees.

(c) A free-wheeling diode can be connected across the load in the same direction of thyristors

(d) A free-wheeling diode can be connected across the load in the opposite direction of thyristors

Choose the correct answer

Options :

1. ✗ (a) and (c) are false

2. ✗ (b) and (d) are false

3. ✓ (b) and (c) are true

4. ✗ (d) and (a) are true

Question Number : 115 Question Id : 1051316235 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The input dc voltage of a 1-ϕ full bridge inverter is 141.4 V and its duty ratio is 0.49. Then its approximate average and rms voltages are

Options :

1. ✗ 69.3 V and 202 V respectively

2. ✗ 99 V and 202 V respectively

3. ✔ 69.3 V and 99 V respectively

4. ✖ 99 V and 69.3 V respectively

Question Number : 116 Question Id : 1051316236 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The fundamental frequency and peak voltage of an inverter are f and V_m respectively. When it contains all odd harmonics, then its frequency and rms voltage of 5^{th} harmonic are

Options :

1. ✖ 5f and $\frac{5V_m}{\sqrt{2}}$ respectively

2. ✖ $\frac{f}{5}$ and $\frac{V_m}{5}$ respectively

3. ✖ $\frac{f}{5}$ and $\frac{V_m}{5\sqrt{2}}$ respectively

4. ✔ 5f and $\frac{V_m}{5\sqrt{2}}$ respectively

Question Number : 117 Question Id : 1051316237 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If α is ratio $\frac{T_{ON}}{T}$ of chopper, then the ratio of input voltage to output voltage of step down and step-up chopper respectively are

Options :

1. ✔ $\frac{1}{\alpha}$ and $(1-\alpha)$

2. ✖ $\frac{1}{\alpha}$ and $\frac{1}{(1-\alpha)}$

3. ✖ α and $(1-\alpha)$

4. ✖ α and $\frac{1}{(1-\alpha)}$

Question Number : 118 Question Id : 1051316238 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

For a step-down Type A chopper, the waveforms of input current I and output current I_o respectively are

Options :

1. ✖ discontinuous and continuous for a resistive load

2. ✔ discontinuous and discontinuous for a resistive load

3. ✖ continuous and continuous for an inductive load

4. ✖ continuous and discontinuous for an inductive load

Question Number : 119 Question Id : 1051316239 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The number of pulses per half cycle of PWM inverter is changed, then

Options :

1. ✖ The rms output voltage does not change, but the frequency changes

2. ✖ Both rms output voltage and output frequency do not change

3. ✔ The rms output voltage changes, but the frequency does not change

4. ✖ Both rms output voltage and output frequency change

Question Number : 120 Question Id : 1051316240 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A dc motor is connected to a 214 V rms (L-L), 3-ϕ, 50 Hz line using a 3-ϕ bridge converter. If the firing angle is $\frac{\pi}{6}$, full load armature current is 2500 A and armature resistance is 4 mΩ, then the back emf is

Options :

1. ✖ 204 V

2. ✖ 260.3 V

3. ✖ 250.3 V

4. ✔ 240.3 V