

# **SSC JE**

## **Previous Year Paper (Electrical) Paper-II**

**06 Nov, 2024**



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## Junior Engineer Civil Mechanical and Electrical Examination 2024 Paper II 6th Nov 2024

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Exam Date	06/11/2024
Exam Time	9:00 AM - 11:00 AM
Subject	Junior Engineer 2024 Paper II Electrical

Section : General Engineering Electrical

**Q.1 Which of the following pairs correctly defines the term in definition?**

- Ans**  1. Resultant Vector: The angular separation between two sinusoidal waveforms with the same frequency.
2. Phasor Subtraction: The process of finding the vector difference between two phasors in a phasor diagram.
3. Vector Subtraction: A single vector that represents the sum or difference of two or more vectors.
4. Phase Difference: The representation of the complex amplitude and phase angle of a sinusoidal waveform or time-varying quantity.

Question ID : 6306801209421

Option 1 ID : 6306804756191

Option 2 ID : 6306804756190

Option 3 ID : 6306804756192

Option 4 ID : 6306804756193

Status : Answered

Chosen Option : 2

**Q.2 What type of electrical signal is shown in the given figure?**



- Ans**  1. Digital Signal
2. Sinusoidal Signal
3. Analog Signal
4. Pulse Signal

Question ID : 6306801209451

Option 1 ID : 6306804756313

Option 2 ID : 6306804756310

Option 3 ID : 6306804756312

Option 4 ID : 6306804756311

Status : Answered

Chosen Option : 1

Q.3 A 12-pole alternator running at a speed of 600 rpm will produce a frequency of \_\_\_\_\_.

- Ans
- 1. 40 Hz
  - 2. 30 Hz
  - 3. 60 Hz
  - 4. 50 Hz

Question ID : 6306801174993  
Option 1 ID : 6306804619208  
Option 2 ID : 6306804619207  
Option 3 ID : 6306804619210  
Option 4 ID : 6306804619209  
Status : Answered  
Chosen Option : 3

Q.4 The no-load primary input current lags the primary voltage by an angle \_\_\_\_\_.

- Ans
- 1.  $\phi < 90^\circ$
  - 2.  $\phi = 90^\circ$
  - 3.  $\phi = 175^\circ$
  - 4.  $\phi = 135^\circ$

Question ID : 6306801174981  
Option 1 ID : 6306804619159  
Option 2 ID : 6306804619160  
Option 3 ID : 6306804619162  
Option 4 ID : 6306804619161  
Status : Answered  
Chosen Option : 1

Q.5 Which of the given options best describes the truthfulness of the following statements with reference to the properties of the magnetic circuits?

P: Permeance is the opposition offered to the magnetic flux by the magnetic path.

Q: Magnetic lines of force cannot pass through air.

- Ans
- 1. Both P and Q are true
  - 2. P is true, but Q is false
  - 3. P is false, but Q is true
  - 4. Both P and Q are false

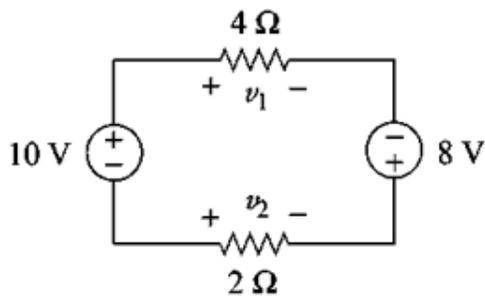
Question ID : 6306801175058  
Option 1 ID : 6306804619470  
Option 2 ID : 6306804619467  
Option 3 ID : 6306804619468  
Option 4 ID : 6306804619469  
Status : Answered  
Chosen Option : 4

Q.6 For a series RLC circuit, at resonance the \_\_\_\_\_.

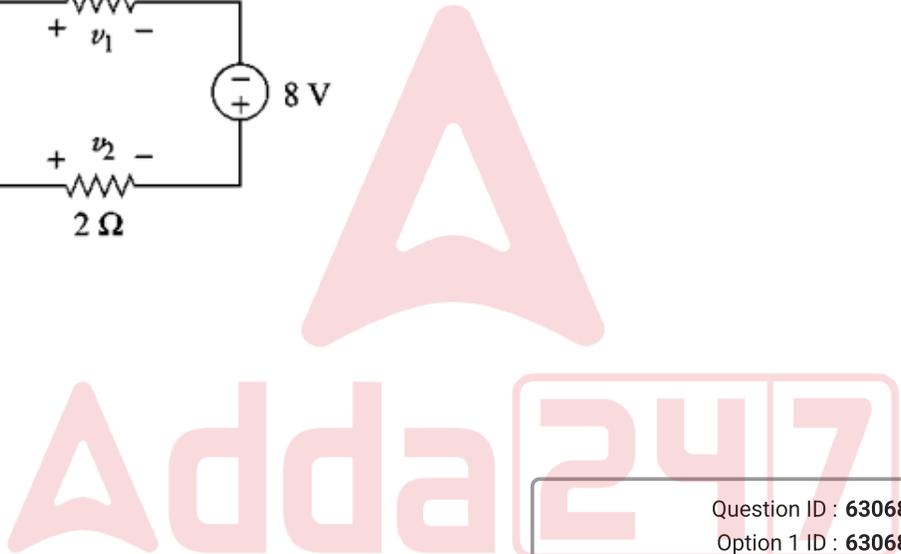
- Ans
- ✓ 1. current is maximum
  - ✗ 2. impedance is maximum
  - ✗ 3. power factor is zero
  - ✗ 4. current is minimum

Question ID : 6306801174961  
 Option 1 ID : 6306804619079  
 Option 2 ID : 6306804619080  
 Option 3 ID : 6306804619082  
 Option 4 ID : 6306804619081  
 Status : Answered  
 Chosen Option : 1

Q.7 Find the voltage 'v<sub>1</sub>' in the following circuit.



- Ans
- ✗ 1. 6 V
  - ✗ 2. -12 V
  - ✓ 3. 12 V
  - ✗ 4. -6 V



Question ID : 6306801174944  
 Option 1 ID : 6306804619011  
 Option 2 ID : 6306804619014  
 Option 3 ID : 6306804619012  
 Option 4 ID : 6306804619013  
 Status : Answered  
 Chosen Option : 3

**Q.8** In an indirect arc furnace, the heat is transmitted from the arc to the top layer of the charge by \_\_\_\_\_ and it operates at a power factor of \_\_\_\_\_.

- Ans**
- 1. radiation; 0.85 lagging
  - 2. conduction; 0.8 leading
  - 3. radiation; 0.7 leading
  - 4. convection; 0.85 lagging

Question ID : 6306801175029  
Option 1 ID : 6306804619352  
Option 2 ID : 6306804619351  
Option 3 ID : 6306804619354  
Option 4 ID : 6306804619353  
Status : Answered  
Chosen Option : 1

**Q.9** Select the option that is true regarding the following two statements labelled Assertion (A) and Reason (R).

(A): Open tenders are invited by public advertisement.

(R): Any contractor who is willing to undertake the work and who has the requisite finance and equipment to complete the work satisfactorily is allowed to submit the offer.

- Ans**
- 1. Statements A and R are true and R is the correct explanation of A.
  - 2. Statements A and R are true, but R is not the correct explanation of A.
  - 3. Statements A and R both are false.
  - 4. Statement A is true and statement B is false.

Question ID : 6306801175020  
Option 1 ID : 6306804619317  
Option 2 ID : 6306804619318  
Option 3 ID : 6306804619316  
Option 4 ID : 6306804619315  
Status : Answered  
Chosen Option : 1

**Q.10** A single-stack, eight-phase, multipole stepper motor has six rotor teeth. The phases are excited one at a time. Determine the number of steps per revolution.

- Ans**
- 1. 40
  - 2. 48
  - 3. 24
  - 4. 32

Question ID : 6306801175091  
Option 1 ID : 6306804619601  
Option 2 ID : 6306804619602  
Option 3 ID : 6306804619599  
Option 4 ID : 6306804619600  
Status : Answered  
Chosen Option : 2

Q.11 Choose the correct pair of bridge with its application:

- Ans
- 1. Kelvin double bridge: high resistance
  - 2. Loss of charge method: High Q-coil
  - 3. Wheatstone bridge: Very low resistance
  - 4. Corey Foster's bridge: Medium resistance

Question ID : 6306801209456  
Option 1 ID : 6306804756332  
Option 2 ID : 6306804756333  
Option 3 ID : 6306804756330  
Option 4 ID : 6306804756331  
Status : Answered  
Chosen Option : 4

Q.12 If an electrical device consumes 50 watts of power for 10 minutes, what is the total electrical energy consumed by the device?

- Ans
- 1. 10,000 J
  - 2. 2500 J
  - 3. 3,60,000 J
  - 4. 30,000 J

Question ID : 6306801175069  
Option 1 ID : 6306804619512  
Option 2 ID : 6306804619511  
Option 3 ID : 6306804619514  
Option 4 ID : 6306804619513  
Status : Answered  
Chosen Option : 4

Q.13 Match the different types of lamps with their relative luminous efficiencies.

- (i) Sodium vapour lamp (a) medium  
(ii) Fluorescent lamp (b) very high  
(iii) Tungsten filament lamp (c) low  
(iv) Carbon filament lamp (d) high

- Ans  1. (i)-(d), (ii)-(c), (iii)-(b), (iv)-(a)  
 2. (i)-(b), (ii)-(a), (iii)-(d), (iv)-(c)  
 3. (i)-(b), (ii)-(d), (iii)-(a), (iv)-(c)  
 4. (i)-(b), (ii)-(c), (iii)-(d), (iv)-(a)

Question ID : 6306801175125  
Option 1 ID : 6306804619736  
Option 2 ID : 6306804619738  
Option 3 ID : 6306804619737  
Option 4 ID : 6306804619735  
Status : Answered  
Chosen Option : 3

Q.14 The \_\_\_\_\_ turbine is a reaction turbine in which the runner receives water axially.

- Ans  1. Francis  
 2. Kaplan  
 3. Propeller  
 4. Pelton

Question ID : 6306801175004  
Option 1 ID : 6306804619253  
Option 2 ID : 6306804619252  
Option 3 ID : 6306804619254  
Option 4 ID : 6306804619251  
Status : Answered  
Chosen Option : 2

Q.15 Which of the following is NOT a valid advantage of capacitor-start capacitor-run motor?

- Ans
- 1. High efficiency
  - 2. High power factor
  - 3. High starting torque
  - 4. Low cost

Question ID : 6306801174986

Option 1 ID : 6306804619181

Option 2 ID : 6306804619180

Option 3 ID : 6306804619179

Option 4 ID : 6306804619182

Status : Answered

Chosen Option : 4

Q.16 When applying Thevenin's Theorem to a circuit, if the Thevenin voltage is 40 V and the Thevenin equivalent resistance is  $5\ \Omega$ , what is the current through a load resistor of  $15\ \Omega$  connected across the terminals?

- Ans
- 1. 0.5A
  - 2. 2A
  - 3. 1A
  - 4. 2.5A

Question ID : 6306801209455

Option 1 ID : 6306804756326

Option 2 ID : 6306804756328

Option 3 ID : 6306804756327

Option 4 ID : 6306804756329

Status : Answered

Chosen Option : 2

Q.17 A 15-V source is applied to a capacitive circuit that has an impedance of  $(6 - j8)\ \Omega$ . Find the angle by which the current leads the voltage.

- Ans
- 1.  $\tan^{-1} \frac{1.2}{0.9}$
  - 2.  $\tan^{-1} \frac{1.2}{9}$
  - 3.  $\tan^{-1} \frac{0.9}{1.2}$
  - 4.  $\tan^{-1} \frac{12}{9}$

Question ID : 6306801175067

Option 1 ID : 6306804619506

Option 2 ID : 6306804619505

Option 3 ID : 6306804619503

Option 4 ID : 6306804619504

Status : Answered

Chosen Option : 1

Q.18 Which of the following pair of typical diodes and their corresponding threshold voltages is INCORRECT?

- Ans
- 1. Silicon diode : 0.7 V
  - 2. Schottky diode : 0.2 V
  - 3. Light emitting diode : 0.1 V
  - 4. Germanium diode : 0.3 V

Question ID : 6306801175131

Option 1 ID : 6306804619759

Option 2 ID : 6306804619761

Option 3 ID : 6306804619760

Option 4 ID : 6306804619762

Status : Answered

Chosen Option : 3

Q.19 Which of the following is called the mechanical characteristic of a DC motor?

- Ans
- 1. Armature voltage vs. Armature current characteristic
  - 2. Torque vs. Armature current characteristic
  - 3. Speed vs. Torque characteristic
  - 4. Speed vs. Armature current characteristic

Question ID : 6306801174977

Option 1 ID : 6306804619146

Option 2 ID : 6306804619144

Option 3 ID : 6306804619143

Option 4 ID : 6306804619145

Status : Answered

Chosen Option : 3

Q.20 Select the option that is true regarding the following two statements labelled Assertion (A) and Reason (R).

(A): In a synchronous generator phasor diagram, the armature current ( $I_a$ ) is in phase with the excitation voltage ( $E_f$ ), and the excitation voltage leads to the terminal voltage ( $V_t$ ).

(R): When a synchronous generator operates in generating mode, the armature current is in phase with the excitation voltage, and the excitation voltage leads to the terminal voltage.

- Ans
- 1. Both A and R are true, but R is not the correct explanation of A.
  - 2. Both A and R are true and R is the correct explanation of A.
  - 3. A is true, but R is false.
  - 4. A is false, but R is true.

Question ID : 6306801175099

Option 1 ID : 6306804619632

Option 2 ID : 6306804619631

Option 3 ID : 6306804619633

Option 4 ID : 6306804619634

Status : Answered

Chosen Option : 2

**Q.21** In a resistance start motor, the pull-out torque is about 2.5 times the full load torque at about \_\_\_\_\_ of synchronous speed.

- Ans**
- 1. 100%
  - 2. 75%
  - 3. 50%
  - 4. 25%

Question ID : 6306801174990

Option 1 ID : 6306804619195

Option 2 ID : 6306804619196

Option 3 ID : 6306804619197

Option 4 ID : 6306804619198

Status : Answered

Chosen Option : 2

**Q.22** In a network with multiple resistors, if the delta-star transformation is applied, what is the equivalent delta resistance for a star-connected set of resistors  $R_1=6\ \Omega$ ,  $R_2=10\ \Omega$ , and  $R_3=15\ \Omega$ ?

- Ans**
- 1.  $R_{12} = 50\ \Omega$ ,  $R_{13} = 30\ \Omega$ ,  $R_{23} = 40\ \Omega$
  - 2.  $R_{12} = 30\ \Omega$ ,  $R_{13} = 20\ \Omega$ ,  $R_{23} = 40\ \Omega$
  - 3.  $R_{12} = 20\ \Omega$ ,  $R_{13} = 30\ \Omega$ ,  $R_{23} = 50\ \Omega$
  - 4.  $R_{12} = 40\ \Omega$ ,  $R_{13} = 20\ \Omega$ ,  $R_{23} = 50\ \Omega$

Question ID : 6306801209420

Option 1 ID : 6306804756188

Option 2 ID : 6306804756187

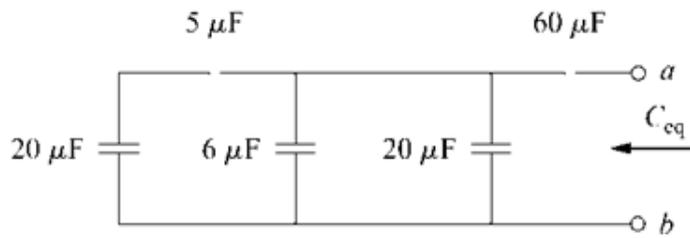
Option 3 ID : 6306804756186

Option 4 ID : 6306804756189

Status : Answered

Chosen Option : 3

Q.23 Find the equivalent capacitance ' $C_{eq}$ ' in the following circuit.



- Ans
- ✓ 1.  $20 \mu\text{F}$
  - ✗ 2.  $35 \mu\text{F}$
  - ✗ 3.  $30 \mu\text{F}$
  - ✗ 4.  $25 \mu\text{F}$

Question ID : 6306801174942  
 Option 1 ID : 6306804619003  
 Option 2 ID : 6306804619006  
 Option 3 ID : 6306804619005  
 Option 4 ID : 6306804619004  
 Status : Answered  
 Chosen Option : 1

Q.24 Calculate the power dissipated in the Zener diode in following circuit.

- Ans
- ✓ 1. 0.66 W
  - ✗ 2. 0.88 W
  - ✗ 3. 0.22 W
  - ✗ 4. 0.44 W

Question ID : 6306801175135  
 Option 1 ID : 6306804619777  
 Option 2 ID : 6306804619778  
 Option 3 ID : 6306804619775  
 Option 4 ID : 6306804619776  
 Status : Not Answered  
 Chosen Option : --

Q.25 In an AC current carrying conductor, the skin effect \_\_\_\_\_ with the increase in diameter of the conductor and \_\_\_\_\_ with the increase in frequency.

- Ans
- ✓ 1. increases, increases
  - ✗ 2. decreases, decreases
  - ✗ 3. decreases, increases
  - ✗ 4. increases, decreases

Question ID : 6306801175115  
Option 1 ID : 6306804619695  
Option 2 ID : 6306804619697  
Option 3 ID : 6306804619696  
Option 4 ID : 6306804619698  
Status : Answered  
Chosen Option : 1

Q.26 Which of the following is the correct sequence of layers from the outermost to the innermost in underground cables?

- Ans
- ✓ 1. Serving → Armouring → Bedding → Metallic sheath → Conductor
  - ✗ 2. Bedding → Metallic sheath → Conductor → Serving → Armouring
  - ✗ 3. Conductor → Metallic sheath → Bedding → Armouring → Serving
  - ✗ 4. Metallic sheath → Bedding → Armouring → Serving → Conductor

Question ID : 6306801175012  
Option 1 ID : 6306804619283  
Option 2 ID : 6306804619284  
Option 3 ID : 6306804619285  
Option 4 ID : 6306804619286  
Status : Answered  
Chosen Option : 1

Q.27 Which of the following is a correct pair of LC oscillators?

- Ans
- ✗ 1. Crystal oscillator and Phase-shift oscillator
  - ✗ 2. Wien bridge oscillator and Phase-shift oscillator
  - ✓ 3. Colpitts oscillator and Hartley oscillator
  - ✗ 4. Wien bridge oscillator and Colpitts oscillator

Question ID : 6306801175074  
Option 1 ID : 6306804619534  
Option 2 ID : 6306804619533  
Option 3 ID : 6306804619531  
Option 4 ID : 6306804619532  
Status : Answered  
Chosen Option : 3

Q.28 Assertion (A): Fixed charges in power generation remain constant regardless of the plant's capacity or operation.

Reason (R): Semi-fixed charges are dependent on the installed capacity of the plant and include costs like interest, depreciation, taxes, and insurance premiums.

Ans  1. Both Assertion and Reason are true, but Reason is not the correct explanation of the Assertion

2. Both Assertion and Reason are true, and Reason is the correct explanation of the Assertion.

3. Assertion is false, but Reason is true.

4. Assertion is true, but Reason is false.

Question ID : 6306801209434

Option 1 ID : 6306804756243

Option 2 ID : 6306804756242

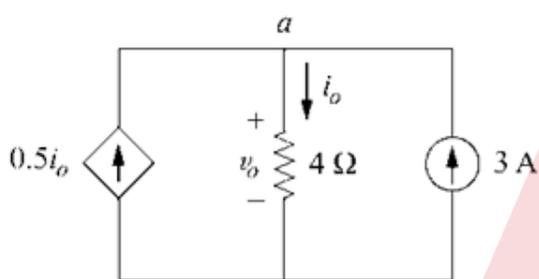
Option 3 ID : 6306804756245

Option 4 ID : 6306804756244

Status : Answered

Chosen Option : 1

Q.29 Find the voltage ' $v_o$ ' in the following circuit.



Ans  1. 16 V

2. 20 V

3. 12 V

4. 24 V

Question ID : 6306801175046

Option 1 ID : 6306804619420

Option 2 ID : 6306804619421

Option 3 ID : 6306804619419

Option 4 ID : 6306804619422

Status : Answered

Chosen Option : 4

**Q.30** Which of the following statements is correct regarding the classification of transmission and distribution lines?

- Ans** ✓ 1. Transmission lines carry electricity over long distances at high voltages, while distribution lines deliver electricity to end-users at lower voltages
- ✗ 2. Both transmission and distribution lines operate at identical voltages, differing only in the type of conductor material used.
- ✗ 3. Transmission lines are designed for short-distance electricity transfer, while distribution lines are specialized for long-distance power transmission.
- ✗ 4. Transmission lines and distribution lines serve the same purpose and are interchangeable in the electrical grid.

Question ID : 6306801209465

Option 1 ID : 6306804756366

Option 2 ID : 6306804756369

Option 3 ID : 6306804756367

Option 4 ID : 6306804756368

Status : Answered

Chosen Option : 1

**Q.31** Match the Following:

**Terms: Definitions:**

1. Phase A. The divisional part of a cycle through which the quantity moves forward from a selected origin.
2. Phase Difference B. The angular phase difference between the maximum possible value of two alternating quantities having the same frequency.
3. Cycle C. When the alternating quantity goes through a complete set of positive or negative values or goes through  $360^\circ$  electrical degrees.

- Ans** ✗ 1. 1-B, 2-A, 3-C
- ✓ 2. 1-A, 2-B, 3-C
- ✗ 3. 1-C, 2-B, 3-A
- ✗ 4. 1-A, 2-C, 3-B

Question ID : 6306801209454

Option 1 ID : 6306804756323

Option 2 ID : 6306804756322

Option 3 ID : 6306804756325

Option 4 ID : 6306804756324

Status : Answered

Chosen Option : 3

**Q.32** A generating station has installed capacity of 50,000 kW and delivers  $(250 \times 10^6)$  units per annum. If the annual fixed charges are ₹160 per kW installed capacity and running charges are 4 paise per kWh, determine the cost per unit generated.

- Ans** ✓ 1. 7.2 paise
- ✗ 2. 7.6 paise
- ✗ 3. 7.0 paise
- ✗ 4. 7.4 paise

Question ID : 6306801175006

Option 1 ID : 6306804619260

Option 2 ID : 6306804619262

Option 3 ID : 6306804619259

Option 4 ID : 6306804619261

Status : Not Answered

Chosen Option : --

Q.33 A synchronous motor is said to be over-excited when:

- Ans
- 1. back EMF is zero
  - 2. back EMF is equal to the applied voltage
  - 3. back EMF is greater than the applied voltage
  - 4. back EMF is less than the applied voltage

Question ID : 6306801175095

Option 1 ID : 6306804619616

Option 2 ID : 6306804619615

Option 3 ID : 6306804619618

Option 4 ID : 6306804619617

Status : Answered

Chosen Option : 3

Q.34 Match the Following:

Terms:

1. Norton's Theorem
2. Thevenin's Theorem
3. Delta-Star Transformation
4. Maximum Power Transfer Theorem

Definitions:

- a) Simplifies a network to an equivalent circuit consisting of a current source and a parallel resistance.
- b) Simplifies a network to an equivalent circuit consisting of a voltage source and a series resistance.
- c) Converts a delta-connected set of resistors to an equivalent star-connected configuration.
- d) Determines the condition for maximum power transfer to a load resistor in a circuit.

- Ans
- 1. 1-d, 2-c, 3-b, 4-a
  - 2. 1-b, 2-a, 3-d, 4-c
  - 3. 1-c, 2-d, 3-a, 4-b
  - 4. 1-a, 2-b, 3-c, 4-d

Question ID : 6306801209415

Option 1 ID : 6306804756168

Option 2 ID : 6306804756167

Option 3 ID : 6306804756169

Option 4 ID : 6306804756166

Status : Answered

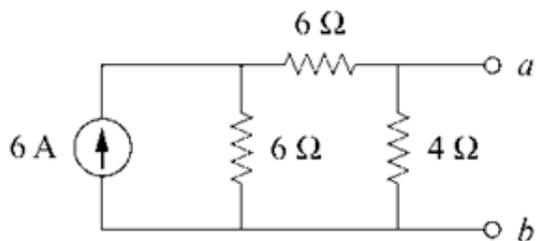
Chosen Option : 4

Q.35 If the maximum demand on the plant is equal to the plant capacity, then the reserve capacity of the plant will be \_\_\_\_\_.

- Ans  1. zero  
 2. same as the maximum demand  
 3. half of the maximum demand  
 4. twice the maximum demand

Question ID : 6306801209463  
 Option 1 ID : 6306804756361  
 Option 2 ID : 6306804756359  
 Option 3 ID : 6306804756358  
 Option 4 ID : 6306804756360  
 Status : Answered  
 Chosen Option : 1

Q.36 Find the Norton's equivalent of the following circuit.



- Ans  1.  $I_N = 3 \text{ A}$ ,  $R_N = 12 \Omega$   
 2.  $I_N = 6 \text{ A}$ ,  $R_N = 12 \Omega$   
 3.  $I_N = 6 \text{ A}$ ,  $R_N = 3 \Omega$   
 4.  $I_N = 3 \text{ A}$ ,  $R_N = 3 \Omega$

Question ID : 6306801174951  
 Option 1 ID : 6306804619042  
 Option 2 ID : 6306804619039  
 Option 3 ID : 6306804619040  
 Option 4 ID : 6306804619041  
 Status : Answered  
 Chosen Option : 3

Q.37 How do electrical connections differ in wiring diagrams compared to schematic diagrams?

Ans  1.

Wiring diagrams emphasise the flow of the system and power output, while schematic diagrams show the connections between devices.

2.

Wiring diagrams use lines to represent the wiring, while schematic diagrams use simplified shapes for connections.

3.

Wiring diagrams use abstract symbols for connections, while schematic diagrams represent the physical wiring.

4.

Wiring diagrams represent the logical working of a circuit, while schematic diagrams focus on the actual wiring connections.

Question ID : 6306801175017

Option 1 ID : 6306804619305

Option 2 ID : 6306804619306

Option 3 ID : 6306804619303

Option 4 ID : 6306804619304

Status : Answered

Chosen Option : 1

Q.38 The frequency of the sinusoidal voltage expressed as  $v(t) = 50 \sin 80\pi t$  is \_\_\_\_\_.

Ans  1. 60 Hz

2. 80 Hz

3. 20 Hz

4. 40 Hz

Question ID : 6306801174939

Option 1 ID : 6306804618993

Option 2 ID : 6306804618994

Option 3 ID : 6306804618991

Option 4 ID : 6306804618992

Status : Answered

Chosen Option : 4

Q.39 In a series RL circuit, the phase difference between the voltage and current will \_\_\_\_\_.

Ans  1. always be  $90^\circ$

2. be between  $0^\circ$  and  $90^\circ$

3. always be  $0^\circ$

4. be between  $90^\circ$  and  $180^\circ$

Question ID : 6306801174960

Option 1 ID : 6306804619076

Option 2 ID : 6306804619077

Option 3 ID : 6306804619075

Option 4 ID : 6306804619078

Status : Answered

Chosen Option : 2

Q.40 In a Cathode Ray Tube (CRT) used for frequency comparison, how are the electrons deflected to compare frequencies?

- Ans
- 1. Both on the horizontal and vertical axes.
  - 2. Along the vertical axis, but not on the horizontal axis.
  - 3. Along the horizontal axis, but not on the vertical axis.
  - 4. Alternating between the horizontal and the vertical axes.

Question ID : 6306801175070  
Option 1 ID : 6306804619517  
Option 2 ID : 6306804619516  
Option 3 ID : 6306804619515  
Option 4 ID : 6306804619518  
Status : Answered  
Chosen Option : 4

Q.41 In ring main distribution system, each distribution transformer is fed with \_\_\_\_\_ feeder / feeders.

- Ans
- 1. four
  - 2. two
  - 3. only one
  - 4. three

Question ID : 6306801175111  
Option 1 ID : 6306804619682  
Option 2 ID : 6306804619680  
Option 3 ID : 6306804619679  
Option 4 ID : 6306804619681  
Status : Answered  
Chosen Option : 3

Q.42 Which statement is incorrect for Tender?

- Ans
- 1. Price and quality are the components in Tender.
  - 2. Find out the best price.
  - 3. Large scope.
  - 4. Doesn't Response for request for tender.

Question ID : 6306801209437  
Option 1 ID : 6306804756255  
Option 2 ID : 6306804756254  
Option 3 ID : 6306804756256  
Option 4 ID : 6306804756257  
Status : Answered  
Chosen Option : 4

Q.43 Which statement accurately describes the working principle of single-phase motors?

- Ans  1. The magnetic field produced by a single-phase motor "pulsates" between 2 motor poles, requiring an initial force for rotor movement.
2. The stationary rotor in a single-phase motor experiences a continuous and smooth rotating magnetic field.
3. Single-phase motors do not require any auxiliary influence for initial movement of the rotor
4. Single-phase motors produce a true rotating magnetic field with 120 degrees of phase separation.

Question ID : 6306801209430

Option 1 ID : 6306804756227

Option 2 ID : 6306804756229

Option 3 ID : 6306804756228

Option 4 ID : 6306804756226

Status : Answered

Chosen Option : 1

Q.44 Determine the energy stored by a 2 H inductor, when the current flowing through it is 4 A.

- Ans  1. 16 J
2. 8 J
3. 32 J
4. 4 J

Question ID : 6306801175038

Option 1 ID : 6306804619389

Option 2 ID : 6306804619388

Option 3 ID : 6306804619390

Option 4 ID : 6306804619387

Status : Answered

Chosen Option : 1

Q.45 Choose the correct pair of transformer type with correct application?

- Ans  1. Distribution Transformer: Component protection.
2. Instrument Transformer: Measuring voltage, current
3. Power transformer: Lanes for domestic purposes
4. Protection Transformer: Generation stations

Question ID : 6306801209459

Option 1 ID : 6306804756343

Option 2 ID : 6306804756344

Option 3 ID : 6306804756342

Option 4 ID : 6306804756345

Status : Answered

Chosen Option : 2

Q.46 The magnetic force per unit length between two parallel current carrying conductors is \_\_\_\_\_.

Ans  1.

inversely proportional to the distance between the conductors

2.

directly proportional to the distance between the conductors

3.

inversely proportional to the current flowing through the conductors

4.

directly proportional to the square of the distance between the conductors

Question ID : 6306801174953

Option 1 ID : 6306804619048

Option 2 ID : 6306804619047

Option 3 ID : 6306804619049

Option 4 ID : 6306804619050

Status : Answered

Chosen Option : 1

Q.47 Select the correct pair of type of industrial heating and the way in which the heating is obtained.

Ans  1. Resistance heating : Heating through dielectric losses

2.

Dielectric heating : Heating through electromagnetic radiation

3. Induction heating : Heating through eddy currents

4.

Infrared heating : Heating through heavy current in a highly resistive element

Question ID : 6306801175126

Option 1 ID : 6306804619742

Option 2 ID : 6306804619739

Option 3 ID : 6306804619740

Option 4 ID : 6306804619741

Status : Answered

Chosen Option : 4

Q.48 With reference to the shaded pole induction motor, state true/false for the following statements.

P: The shaded pole motor rotates in only one direction.

Q: In the shaded pole motor, the copper ring acts as a secondary winding for the motor.

- Ans
- 1. Statement P is true and statement Q is false.
  - 2. Statements P and Q both are false.
  - 3. Statement P is false and statement Q is true.
  - 4. Statements P and Q both are true.

Question ID : 6306801174992

Option 1 ID : 6306804619205

Option 2 ID : 6306804619204

Option 3 ID : 6306804619206

Option 4 ID : 6306804619203

Status : Answered

Chosen Option : 4

Q.49 In the questions given below, there are two statements marked as Assertion (A) and Reason (R). Mark your answer as per the codes provided below:

Assertion (A):

Stepper motors are suitable for positioning applications where holding a position is essential, and they are generally less expensive.

Reason (R):

Servomotors are true feedback positioners with encoders, providing precise control over motion and speed.

- Ans
- 1. Both Assertion and Reason are true, and Reason is the correct explanation of the Assertion.
  - 2. Assertion is false, but Reason is true.
  - 3. Both Assertion and Reason are true, but Reason is not the correct explanation of the Assertion.
  - 4. Assertion is true, but Reason is false.

Question ID : 6306801209431

Option 1 ID : 6306804756230

Option 2 ID : 6306804756233

Option 3 ID : 6306804756231

Option 4 ID : 6306804756232

Status : Answered

Chosen Option : 3

Q.50 In a parallel RL circuit, the inductive susceptance is given by \_\_\_\_\_.

- Ans
- 1.  $B = 2\omega L$
  - 2.  $B = \omega L$
  - 3.  $B = \frac{1}{\omega L}$
  - 4.  $B = \frac{L}{\omega}$

Question ID : 6306801175064

Option 1 ID : 6306804619492

Option 2 ID : 6306804619491

Option 3 ID : 6306804619493

Option 4 ID : 6306804619494

Status : Answered

Chosen Option : 3

Q.51 The coils of a DC motor starter are wound with wire of Manganin because of the \_\_\_\_\_ temperature coefficient of resistance and \_\_\_\_\_ thermoelectric EMF, respectively.

- Ans
- 1. low, low
  - 2. high, high
  - 3. low, high
  - 4. high, low

Question ID : 6306801175080

Option 1 ID : 6306804619555

Option 2 ID : 6306804619558

Option 3 ID : 6306804619556

Option 4 ID : 6306804619557

Status : Answered

Chosen Option : 1

Q.52 Which of the following motors divides the full rotation into equal number of steps?

- Ans
- 1. Universal motor
  - 2. Hysteresis motor
  - 3. Synchronous motor
  - 4. Stepper motor

Question ID : 6306801175085

Option 1 ID : 6306804619575

Option 2 ID : 6306804619577

Option 3 ID : 6306804619578

Option 4 ID : 6306804619576

Status : Answered

Chosen Option : 4

**Q.53** An overhead transmission line is supported by supports at equal levels. Assuming the weight per unit length and tension in the conductor constant, if the length of the conductor span is \_\_\_\_\_, then the sag will decrease by 25%.

- Ans**
- 1. increased by 25%
  - 2. increased by 50%
  - 3. reduced by 25%
  - 4. reduced by 50%

Question ID : 6306801175113  
Option 1 ID : 6306804619688  
Option 2 ID : 6306804619690  
Option 3 ID : 6306804619687  
Option 4 ID : 6306804619689  
Status : Answered  
Chosen Option : 3

**Q.54** Which of the following application of CRO is incorrect?

- Ans**
- 1. Generate the different type of electrical signals
  - 2. Measure the voltage, current, frequency, inductance, admittance, resistance and power factor.
  - 3. Monitor the signal properties as well as characteristics
  - 4. Control the analog signals

Question ID : 6306801209422  
Option 1 ID : 6306804756196  
Option 2 ID : 6306804756194  
Option 3 ID : 6306804756195  
Option 4 ID : 6306804756197  
Status : Answered  
Chosen Option : 2

**Q.55** Which of the following is the most important factor governing the selection of an electric motor in electives among the following options?

- Ans**
- 1. Ambient temperature of the place where the motor is mounted
  - 2. Maintenance cost of the motor
  - 3. Appearance of the motor
  - 4. Torque-speed characteristics of the motor

Question ID : 6306801175028  
Option 1 ID : 6306804619350  
Option 2 ID : 6306804619349  
Option 3 ID : 6306804619348  
Option 4 ID : 6306804619347  
Status : Answered  
Chosen Option : 4

Q.56 Explore the characteristics of outdoor cables and their suitability for different conditions. Assess the following statements and determine their correctness.

Statements:

I. Outdoor cables are designed to be buried underground and can withstand exposure to harsh elements.

II. Underground Burial Cables, with water-blocking fillers or polymer gel, ensure long-term resistance to water infiltration into the core.

- Ans
- 1. Statements II alone is correct
  - 2. Statement I alone is correct
  - 3. Both Statements I and II together are incorrect
  - 4. Both Statements I and II together are correct

Question ID : 6306801209469

Option 1 ID : 6306804756383

Option 2 ID : 6306804756382

Option 3 ID : 6306804756385

Option 4 ID : 6306804756384

Status : Answered

Chosen Option : 4

Q.57 Which of the given options best describes the truthfulness of the following statements?

P: Within the solenoid, the field lines are in the form of parallel straight lines.

Q: The field within the solenoid is uniform.

R: Both ends of the solenoid act as magnetic north poles.

- Ans
- 1. Only statements P and Q are correct
  - 2. Statements P, Q and R – all are correct
  - 3. Only statements Q and R are correct
  - 4. Only statements P and R are correct

Question ID : 6306801175059

Option 1 ID : 6306804619472

Option 2 ID : 6306804619471

Option 3 ID : 6306804619474

Option 4 ID : 6306804619473

Status : Answered

Chosen Option : 1

**Q.58** Select the option that is true regarding the following two statements labelled Assertion (A) and Reason (R).

(A): Synchronous motors can be used to improve the voltage regulation of the transmission lines.

(R): Synchronous motors are well suited where constant speed is required.

**Ans** ✓ 1.

Statements A and R are true, but R is not the correct explanation of A.

✗ 2. Both statements A and R are false.

✗ 3. Statement A is true, but statement R is false.

✗ 4.

Statements A and R are true and R is the correct explanation of A.

Question ID : 6306801175088

Option 1 ID : 6306804619590

Option 2 ID : 6306804619588

Option 3 ID : 6306804619587

Option 4 ID : 6306804619589

Status : Answered

Chosen Option : 1

**Q.59** Match the Following:

Function: Devices:

1. Producing Electron beam A. Trigger circuit

2. Deflected beam appear B. Fluorescent screen.

3. Synchronising the deflection of electron beam C. Electron gun

4. Generate different type of wave D. Function generator.

**Ans** ✗ 1. 1-B, 2-C, 3-D, 4-A

✓ 2. 1- C, 2- B, 3- A, 4-D

✗ 3. 1-C, 2-A, 3-D, 4-B

✗ 4. 1-A, 2-B, 3-C, 4-D

Question ID : 6306801209424

Option 1 ID : 6306804756203

Option 2 ID : 6306804756204

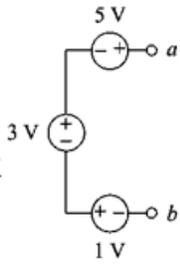
Option 3 ID : 6306804756205

Option 4 ID : 6306804756202

Status : Answered

Chosen Option : 2

Q.60 Find the voltage ' $V_{ab}$ ' between terminals 'a' and 'b' in the following figure.



- Ans
- 1. 7 V
  - 2. 9 V
  - 3. 3 V
  - 4. 1 V

Question ID : 6306801174945  
 Option 1 ID : 6306804619017  
 Option 2 ID : 6306804619018  
 Option 3 ID : 6306804619016  
 Option 4 ID : 6306804619015  
 Status : Answered  
 Chosen Option : 2

Q.61 What is the power consumption, in watts, of a  $\frac{1}{4}$  HP motor, according to the provided information?

- Ans
- 1. 373 watts
  - 2. 186 watts
  - 3. 745.7 watts
  - 4. 932.85 watts

Question ID : 6306801209426  
 Option 1 ID : 6306804756210  
 Option 2 ID : 6306804756211  
 Option 3 ID : 6306804756212  
 Option 4 ID : 6306804756213  
 Status : Answered  
 Chosen Option : 2

Q.62 Which of the following statements are correct?

P: Biomass energy or fuel cannot be stored and distributed.

Q: The emissions from biomass energy generation can potentially pollute the environment.

R: Biomass power plants that use pyrolysis are more efficient than direct combustion power plants.

- Ans
- 1. Only statements P and Q are correct.
  - 2. Statements P, Q and R – all are correct.
  - 3. Only statements P and R are correct.
  - 4. Only statements Q and R are correct.

Question ID : 6306801175007

Option 1 ID : 6306804619263

Option 2 ID : 6306804619266

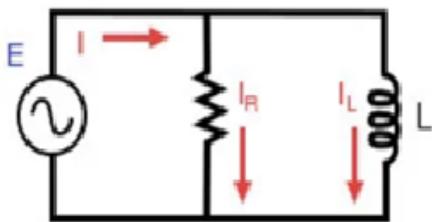
Option 3 ID : 6306804619265

Option 4 ID : 6306804619264

Status : Answered

Chosen Option : 3

Q.63 Which of the following equations is correct according to the given parallel circuit?



- Ans
- 1.  $E = E_R / E_L$
  - 2.  $I = I_R / I_L$
  - 3.  $I = I_R + I_L$
  - 4.  $E = E_R + E_L$

Question ID : 6306801209446

Option 1 ID : 6306804756292

Option 2 ID : 6306804756293

Option 3 ID : 6306804756291

Option 4 ID : 6306804756290

Status : Answered

Chosen Option : 3

Q.64 With reference to DC arc welding, which of the following statements is INCORRECT?

- Ans
- 1. It is costlier than AC arc welding.
  - 2. It cannot be used for nonferrous metals.
  - 3. The operation is noisy.
  - 4. The arc is stable.

Question ID : 6306801175130  
Option 1 ID : 6306804619757  
Option 2 ID : 6306804619758  
Option 3 ID : 6306804619756  
Option 4 ID : 6306804619755  
Status : Answered  
Chosen Option : 2

Q.65 What type of component in an electrical circuit has to be used to deliver power or process electrical signals?

- Ans
- 1. Linear component
  - 2. Passive component
  - 3. Unilateral component
  - 4. Active component

Question ID : 6306801209412  
Option 1 ID : 6306804756155  
Option 2 ID : 6306804756157  
Option 3 ID : 6306804756154  
Option 4 ID : 6306804756156  
Status : Answered  
Chosen Option : 4

Q.66 Which of the following pairs of typical diodes and their corresponding threshold voltages is correct?

- Ans
- 1. Schottky diode : 2 V
  - 2. Light-emitting diode : 0.1 V
  - 3. Germanium diode : 0.9 V
  - 4. Silicon diode : 0.7 V

Question ID : 6306801175031  
Option 1 ID : 6306804619361  
Option 2 ID : 6306804619362  
Option 3 ID : 6306804619360  
Option 4 ID : 6306804619359  
Status : Answered  
Chosen Option : 4

Q.67 Explore the components and systems related to the thermal power plant. Assess the following statements and determine their correctness.

Statements:

I. Ash handling plants (AHPs) remove ash from furnace ash hoppers, convey it through mechanical, hydraulic, or pneumatic transport, and dispose of the stored ash.

II. The electrical thermal plant involves supplying medium voltage, low voltage, and direct current power to all loads in the power plant, covering aspects from power evacuation to switchyard control.

- Ans
- 1. Both Statements I and II together are incorrect
  - 2. Both Statements I and II together are correct
  - 3. Statements II is correct
  - 4. Statement I alone is correct

Question ID : 6306801209464

Option 1 ID : 6306804756365

Option 2 ID : 6306804756364

Option 3 ID : 6306804756363

Option 4 ID : 6306804756362

Status : Answered

Chosen Option : 4

Q.68 A 240-V DC shunt motor has an armature resistance of  $0.25 \Omega$  and runs at 1000 RPM, taking an armature current of 40 A. It is desired to reduce to speed to 800 RPM. If the armature current remains the same, find the additional resistance to be connected in series with the armature circuit.

- Ans
- 1.  $1.75 \Omega$
  - 2.  $1.25 \Omega$
  - 3.  $1.65 \Omega$
  - 4.  $1.15 \Omega$

Question ID : 6306801175082

Option 1 ID : 6306804619566

Option 2 ID : 6306804619564

Option 3 ID : 6306804619565

Option 4 ID : 6306804619563

Status : Answered

Chosen Option : 4

Q.69 Which of the following is a VALID disadvantage of single bus bar system?

- Ans
- 1. High fault current
  - 2. High cost
  - 3. Complex operation
  - 4. High maintenance

Question ID : 6306801175123

Option 1 ID : 6306804619730

Option 2 ID : 6306804619727

Option 3 ID : 6306804619729

Option 4 ID : 6306804619728

Status : Answered

Chosen Option : 1

**Q.70** Under no-load conditions, if the frequency of the AC supply is decreased while maintaining a constant magnetic flux in a single-phase transformer, what is the anticipated impact on the induced voltage in the secondary winding?

- Ans**
- 1. The induced voltage undergoes a linear increase.
  - 2. The induced voltage demonstrates a sinusoidal variation.
  - 3. The induced voltage experiences a linear decrease.
  - 4. The induced voltage remains constant.

Question ID : 6306801174978

Option 1 ID : 6306804619148

Option 2 ID : 6306804619150

Option 3 ID : 6306804619147

Option 4 ID : 6306804619149

Status : Answered

Chosen Option : 3

**Q.71** Which of the following is NOT a valid disadvantage of shaded-pole type single-phase induction motor?

- Ans**
- 1. Low starting torque
  - 2. Low power factor
  - 3. High cost
  - 4. High losses

Question ID : 6306801174987

Option 1 ID : 6306804619183

Option 2 ID : 6306804619186

Option 3 ID : 6306804619184

Option 4 ID : 6306804619185

Status : Answered

Chosen Option : 3

**Q.72** A 36-pole alternator running at a speed of \_\_\_\_\_ RPM will produce a frequency of 60 Hz.

- Ans**
- 1. 400
  - 2. 200
  - 3. 600
  - 4. 300

Question ID : 6306801175093

Option 1 ID : 6306804619609

Option 2 ID : 6306804619607

Option 3 ID : 6306804619610

Option 4 ID : 6306804619608

Status : Answered

Chosen Option : 2

Q.73 Which of the following is the correct classification of distribution systems according to the nature of the current?

- Ans
- 1. Overhead and underground systems
  - 2. Radial, ring mains and interconnected systems
  - 3. AC and DC distribution systems
  - 4. Open and insulated conductor systems

Question ID : 6306801175010  
Option 1 ID : 6306804619275  
Option 2 ID : 6306804619276  
Option 3 ID : 6306804619277  
Option 4 ID : 6306804619278  
Status : Answered  
Chosen Option : 3

Q.74 Which of the following oscillators is generally considered a fixed frequency oscillator?

- Ans
- 1. Phase-shift oscillator
  - 2. Hartley oscillator
  - 3. Wien-bridge oscillator
  - 4. Crystal oscillator

Question ID : 6306801174974  
Option 1 ID : 6306804619134  
Option 2 ID : 6306804619132  
Option 3 ID : 6306804619133  
Option 4 ID : 6306804619131  
Status : Answered  
Chosen Option : 4

Q.75 With reference to the methods of determination of voltage regulation of smooth cylindrical rotor type alternators, which of the following methods is known as zero-power factor method?

- Ans
- 1. Synchronous impedance method
  - 2. Direct loading method
  - 3. Potier method
  - 4. Ampere-turn method

Question ID : 6306801174996  
Option 1 ID : 6306804619220  
Option 2 ID : 6306804619222  
Option 3 ID : 6306804619219  
Option 4 ID : 6306804619221  
Status : Answered  
Chosen Option : 3

Q.76 Determine the total charge transferred over the time interval of  $0 \leq t \leq 10$  s, when the current is given as  $i(t) = 0.5 t$  A.

- Ans
- 1. 50 C
  - 2. 10 C
  - 3. 25 C
  - 4. 5 C

Question ID : 6306801175040  
Option 1 ID : 6306804619395  
Option 2 ID : 6306804619397  
Option 3 ID : 6306804619396  
Option 4 ID : 6306804619398  
Status : Answered  
Chosen Option : 3

Q.77 What is the mathematical representation of solid angle ( $\omega$ ) in terms of area (A) and radius (r)?

- Ans
- 1.  $\omega = r/A^2$
  - 2.  $\omega = A/r^2$
  - 3.  $\omega = A/r$
  - 4.  $\omega = A r^2 / 2$

Question ID : 6306801209441  
Option 1 ID : 6306804756271  
Option 2 ID : 6306804756273  
Option 3 ID : 6306804756270  
Option 4 ID : 6306804756272  
Status : Answered  
Chosen Option : 2

Q.78 What will be the main consideration in quotation of any electrical installation?

- Ans
- 1. Designing of component
  - 2. Quality of component
  - 3. Pricing of component
  - 4. Type of bid

Question ID : 6306801209436  
Option 1 ID : 6306804756252  
Option 2 ID : 6306804756253  
Option 3 ID : 6306804756251  
Option 4 ID : 6306804756250  
Status : Answered  
Chosen Option : 3

Q.79 In a transformer, the core loss is found to be 52 W at 40 Hz and 90 W at 60 Hz, measured at same peak flux density. Compute the eddy current loss at 50 Hz.

- Ans
- 1. 25 W
  - 2. 55 W
  - 3. 35 W
  - 4. 45 W

Question ID : 6306801174983  
Option 1 ID : 6306804619167  
Option 2 ID : 6306804619170  
Option 3 ID : 6306804619168  
Option 4 ID : 6306804619169  
Status : Answered  
Chosen Option : 1

Q.80 Which of the following is a passive electronic component?

- Ans
- 1. Photo diode
  - 2. Operational amplifier
  - 3. Capacitor
  - 4. Transistor

Question ID : 6306801175037  
Option 1 ID : 6306804619384  
Option 2 ID : 6306804619385  
Option 3 ID : 6306804619386  
Option 4 ID : 6306804619383  
Status : Answered  
Chosen Option : 3

Q.81 Explore the components and systems related to the thermal power plant. Assess the following statements and determine their correctness.

Statements:

I. Water economizers in boiler installations increase efficiency by utilizing the heat of exhaust gases.

II. The electrical thermal plant involves supplying medium voltage, low voltage, and direct current power to all loads in the power plant, covering aspects from power evacuation to switchyard control.

- Ans
- 1. Statement I alone is correct
  - 2. Statements II is correct
  - 3. Both Statements I and II together are incorrect
  - 4. Both Statements I and II together are correct

Question ID : 6306801209433  
Option 1 ID : 6306804756238  
Option 2 ID : 6306804756239  
Option 3 ID : 6306804756241  
Option 4 ID : 6306804756240  
Status : Answered  
Chosen Option : 1

**Q.82** Two long parallel conductors, each one carrying current 100 A, flowing in the same direction, are separated by 1 cm in air. Find the force per metre length of the conductor.

- Ans**
- 1. 2.0 N/m attractive force
  - 2. 2.0 N/m repulsive force
  - 3. 0.2 N/m repulsive force
  - 4. 0.2 N/m attractive force

Question ID : 6306801174955

Option 1 ID : 6306804619058

Option 2 ID : 6306804619056

Option 3 ID : 6306804619055

Option 4 ID : 6306804619057

Status : Answered

Chosen Option : 4

**Q.83** What is the significance of Rule 29 in the Indian Electricity Rules, 2005, regarding electrical installations?

- Ans**
- 1. It defines the safety measures for the installation, protection, and maintenance of electrical systems.
  - 2. It details the guidelines for the Bureau of Indian Standards related to electrical engineering.?
  - 3. It outlines the regulations for estimating and costing in electrical projects.
  - 4. It specifies the requirements for planning electrical circuits.

Question ID : 6306801209440

Option 1 ID : 6306804756268

Option 2 ID : 6306804756269

Option 3 ID : 6306804756267

Option 4 ID : 6306804756266

Status : Answered

Chosen Option : 1

**Q.84** In a cathode-ray tube, the focusing anode is positioned between the \_\_\_\_\_.

- Ans**
- 1. pre-accelerating anode and accelerating anode
  - 2. horizontal and vertical deflection plates
  - 3. control grid and pre-accelerating anode
  - 4. accelerating anode and vertical deflection plates

Question ID : 6306801174970

Option 1 ID : 6306804619116

Option 2 ID : 6306804619117

Option 3 ID : 6306804619115

Option 4 ID : 6306804619118

Status : Answered

Chosen Option : 1

**Q.85** Which of the given options best describes the truthfulness of the following statements with reference to mechanical draught and natural draught in a thermal power plant?

P: Mechanical draught is independent of atmospheric temperature.

Q: In case of natural draught, the chimney height is more.

- Ans**
- 1. P: False, Q: True
  - 2. P: True, Q: False
  - 3. P: True, Q: True
  - 4. P: False, Q: False

Question ID : 6306801175108  
 Option 1 ID : 6306804619670  
 Option 2 ID : 6306804619669  
 Option 3 ID : 6306804619667  
 Option 4 ID : 6306804619668  
 Status : Answered  
 Chosen Option : 3

**Q.86** Match the following terms with their correct formula in the context of work (W), power(P), and (E)energy:

Terms: Definitions:

1. Electrical Energy Formula a)  $V \cdot I$  watts
2. Electrical Power formula b)  $I^2 R \cdot t$
3. Basic Units of Electrical Energy c) Joule
4. Basic units of Electrical Power d) Joule/Sec

- Ans**
- 1. 1-b, 2-d, 3-a, 4-c
  - 2. 1-d, 2-b, 3-c, 4-a
  - 3. 1-c, 2-a, 3-d, 4-b
  - 4. 1-b, 2-a, 3-c, 4-d

Question ID : 6306801209417  
 Option 1 ID : 6306804756175  
 Option 2 ID : 6306804756174  
 Option 3 ID : 6306804756176  
 Option 4 ID : 6306804756177  
 Status : Answered  
 Chosen Option : 4

**Q.87** What component, integral to electrostatics, is designed to accumulate and discharge electrical energy by utilizing the electric field between two conductive plates?

- Ans**
- 1. Capacitors
  - 2. Transformers
  - 3. Inductors
  - 4. Resistors

Question ID : 6306801209449  
 Option 1 ID : 6306804756303  
 Option 2 ID : 6306804756302  
 Option 3 ID : 6306804756304  
 Option 4 ID : 6306804756305  
 Status : Answered  
 Chosen Option : 1

**Q.88** A potential barrier of 0.7 V exists across a PN-junction. Calculate the intensity of the electric field in the depletion region, if the width of the depletion region is  $(3.5 \times 10^{-7})$  m.

- Ans
- 1.  $(0.2 \times 10^6)$  V/m
  - 2.  $(0.2 \times 10^4)$  V/m
  - 3.  $(2 \times 10^6)$  V/m
  - 4.  $(2 \times 10^4)$  V/m

Question ID : 6306801175134  
Option 1 ID : 6306804619773  
Option 2 ID : 6306804619774  
Option 3 ID : 6306804619772  
Option 4 ID : 6306804619771  
Status : Answered  
Chosen Option : 3

**Q.89** Under what conditions does an alternator exhibit a zero-voltage regulation?

- Ans
- 1. At unity power factor
  - 2. At a certain leading power factor
  - 3. At lower leading power factors
  - 4. At lagging power factor

Question ID : 6306801209428  
Option 1 ID : 6306804756218  
Option 2 ID : 6306804756221  
Option 3 ID : 6306804756220  
Option 4 ID : 6306804756219  
Status : Answered  
Chosen Option : 2

**Q.90** Which of the following statements is INCORRECT?

- Ans
- 1. Commercial electrical systems operate at higher voltage levels.
  - 2. Commercial properties typically require a three-phase electrical supply to meet higher power demands.
  - 3. Commercial setups often utilise conduit-based wiring methods for easier maintenance.
  - 4. Commercial installations are cheaper and easier to maintain.

Question ID : 6306801175021  
Option 1 ID : 6306804619320  
Option 2 ID : 6306804619319  
Option 3 ID : 6306804619321  
Option 4 ID : 6306804619322  
Status : Answered  
Chosen Option : 1

Q.91 In a complex electrical network, applying Norton's Theorem involves finding the Norton current and Norton equivalent resistance. What is the Norton equivalent resistance for a network with resistances  $R_1=8\Omega$  and  $R_2=12\Omega$  in parallel?

- Ans  1.  $2.4\Omega$   
 2.  $4.8\Omega$   
 3.  $20\Omega$   
 4.  $12.6\Omega$

Question ID : 6306801209447

Option 1 ID : 6306804756297

Option 2 ID : 6306804756296

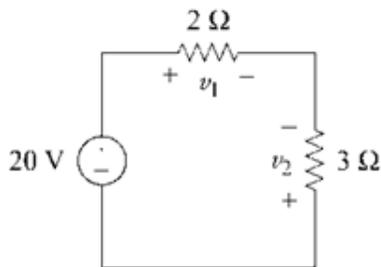
Option 3 ID : 6306804756294

Option 4 ID : 6306804756295

Status : Answered

Chosen Option : 2

Q.92 Find the voltage ' $v_1$ ' in the following circuit.



- Ans  1.  $-8\text{ V}$   
 2.  $8\text{ V}$   
 3.  $-12\text{ V}$   
 4.  $12\text{ V}$

Question ID : 6306801175044

Option 1 ID : 6306804619413

Option 2 ID : 6306804619411

Option 3 ID : 6306804619414

Option 4 ID : 6306804619412

Status : Answered

Chosen Option : 2

**Q.93** Which of the following statements about the torque vs. armature current ( $T_a$ - $I_a$ ) characteristic of DC series motors is correct?

- Ans**
- 1. The shaft torque ( $T_{sh}$ ) is greater than armature torque ( $T_a$ ) due to stray losses.
  - 2. After magnetic saturation, the  $T_a$ - $I_a$  curve becomes a parabola.
  - 3. The  $T_a$ - $I_a$  curve is a parabola for smaller values of armature current before magnetic saturation.
  - 4. In DC series motors, torque varies inversely with armature current after magnetic saturation.

Question ID : 6306801209458  
 Option 1 ID : 6306804756340  
 Option 2 ID : 6306804756339  
 Option 3 ID : 6306804756338  
 Option 4 ID : 6306804756341  
 Status : Answered  
 Chosen Option : 3

**Q.94** What is the primary difference between Avalanche breakdown and Zener breakdown in a p-n junction diode?

- Ans**
- 1. Both breakdowns occur due to the rapid collision of electrons
  - 2. Zener breakdown is irreversible, while Avalanche breakdown is reversible
  - 3. Avalanche breakdown is a controlled version of Zener breakdown.
  - 4. Avalanche breakdown is irreversible, while Zener breakdown is reversible.

Question ID : 6306801209444  
 Option 1 ID : 6306804756284  
 Option 2 ID : 6306804756285  
 Option 3 ID : 6306804756283  
 Option 4 ID : 6306804756282  
 Status : Answered  
 Chosen Option : 2

**Q.95** Match the transistor configuration with the corresponding output resistance of the configuration.

- |                       |               |
|-----------------------|---------------|
| (i) Common emitter    | (a) Low       |
| (ii) Common collector | (b) Very high |
| (iii) Common base     | (c) High      |

- Ans**
- 1. (i)-(a), (ii)-(b), (iii)-(c)
  - 2. (i)-(b), (ii)-(c), (iii)-(a)
  - 3. (i)-(c), (ii)-(a), (iii)-(b)
  - 4. (i)-(c), (ii)-(b), (iii)-(a)

Question ID : 6306801175033  
 Option 1 ID : 6306804619367  
 Option 2 ID : 6306804619370  
 Option 3 ID : 6306804619369  
 Option 4 ID : 6306804619368  
 Status : Answered  
 Chosen Option : 3

Q.96 Which of the following statements is INCORRECT for the superposition theorem?

Ans  1. It is used to find voltages and currents.

2. It is applicable to linear circuits.

3. It is applicable to bilateral circuits.

4.

It is applicable if the circuit involves nonlinear elements such as diodes

Question ID : 6306801174948

Option 1 ID : 6306804619029

Option 2 ID : 6306804619027

Option 3 ID : 6306804619028

Option 4 ID : 6306804619030

Status : Answered

Chosen Option : 4

Q.97 The impedance of a series RL circuit is  $130 \Omega$ . If the inductive reactance ( $X_L$ ) in the circuit is  $50 \Omega$ , find the value of the resistance.

Ans  1.  $80 \Omega$

2.  $120 \Omega$

3.  $180 \Omega$

4.  $90 \Omega$

Question ID : 6306801174963

Option 1 ID : 6306804619087

Option 2 ID : 6306804619089

Option 3 ID : 6306804619090

Option 4 ID : 6306804619088

Status : Answered

Chosen Option : 2

Q.98 In a 3-wire DC system, in order to maintain voltages on the two sides of the neutral equal to each other, a/an \_\_\_\_\_ is used.

Ans  1. amplifier

2. booster

3. diverter

4. balancer set

Question ID : 6306801175116

Option 1 ID : 6306804619702

Option 2 ID : 6306804619699

Option 3 ID : 6306804619701

Option 4 ID : 6306804619700

Status : Answered

Chosen Option : 4

Q.99 Which of the following is NOT a diamagnetic material?

- Ans
- 1. Iron
  - 2. Bismuth
  - 3. Silicon
  - 4. Lead

Question ID : 6306801175057  
Option 1 ID : 6306804619463  
Option 2 ID : 6306804619466  
Option 3 ID : 6306804619465  
Option 4 ID : 6306804619464  
Status : Answered  
Chosen Option : 1

Q.100 What is the term used to describe the combination of a transmission line's resistance, inductance, and capacitance, influencing the voltage drop along the line and its ability to transfer power efficiently?

- Ans
- 1. Voltage Level
  - 2. Line Configuration
  - 3. Line Losses
  - 4. Line Impedance

Question ID : 6306801209466  
Option 1 ID : 6306804756373  
Option 2 ID : 6306804756370  
Option 3 ID : 6306804756372  
Option 4 ID : 6306804756371  
Status : Answered  
Chosen Option : 2