



RRB ALP 2024 CBT 2

Assistant Loco Pilot · CEN 01/2024 · CBT 2 · Electrician Trade · Part B (Electrician) · Question Paper

English

All 4 Shifts (Sets) · Part B (Electrician) Section · Official Answer Key

About this Compilation

This booklet contains all 4 shift papers of the RRB ALP 2024 CBT 2 (Electrician) examination in English (Part B (Electrician) section only), with the correct option marked as per the official answer key.

✓ Correct option (highlighted green)

How to use

- Use the **Index** page to jump directly to any set (clickable).
- Questions appear section by section in the order of the paper, numbered 1 onward.
- Diagram and wide-table questions appear at full width at the end of their section.
- The correct answer is highlighted in green with a tick.

More from QMaths

Check your marks, normalized score and zone-wise rank free at rank.qmaths.in. Master English vocabulary with the **Blackbook** app.



Toppers' Choice, Blackbook of English Vocabulary, Now available in App format : DOWNLOAD NOW

Index — All Sets (click to open)

Set 1

02 May 2025
9:30 AM - 12:00 PM

Set 3

06 May 2025
9:30 AM - 12:00 PM

Set 2

02 May 2025
2:30 PM - 5:00 PM

Set 4

06 May 2025
2:30 PM - 5:00 PM

Part B (Electrician)

75 Questions • Answer Key

Q1 Part B (Electrician)

A DC generator is running at constant speed. If the load current increases, what happens to the terminal voltage?

- A. Decreases ✓
- B. Increases
- C. Remains constant
- D. Fluctuates randomly

Q2 Part B (Electrician)

When selecting a sheet size for an original drawing, what should be the primary consideration?

- A. The standard size of the drawing office.
- B. The clarity and resolution required. ✓
- C. The orientation of the drawing (horizontal or vertical).
- D. The size of the reproduction.

Q3 Part B (Electrician)

What type of device is a UJT?

- A. Metal-oxide-semiconductor device
- B. Optical device
- C. Unipolar junction device
- D. Bipolar junction device ✓

Q4 Part B (Electrician)

A 20 kVA, 2500/250 V, 50 Hz, single phase transformer gave the open circuit test result (on low voltage side) as 250 V, 1.6 A and 100 W; then no load power factor is:

- A. 0.15
- B. 0.2
- C. 0.25 ✓
- D. 0.1

Q5 Part B (Electrician)

In a balanced star-connected system, the neutral point _____.

- A. carries current even in balanced loading conditions
- B. is always at a voltage equal to any phase
- C. is at zero potential with respect to all phases ✓
- D. is at a higher constant voltage relative to the ground

Q6 Part B (Electrician)

When a strong magnet is placed near a weak magnet, what will likely happen?

- A. The weak magnet will disappear.
- B. The strong magnet will induce magnetism in the weak magnet. ✓
- C. The strong magnet will lose its magnetism.
- D. The weak magnet will repel the strong magnet.

Q7 Part B (Electrician)

A circular hole of radius 3 cm is cut from a rectangular sheet of dimensions 12 cm × 10 cm. Find the remaining area.

(Take $\pi = 3.14$)

- A. 100 cm²
- B. 91.74 cm² ✓
- C. 95.86 cm²
- D. 75.74 cm²

Q8 Part B (Electrician)

Non-functional dimensions are _____.

- A. not essential for the function of the space or component ✓
- B. essential for the function of the space or component
- C. derived from the values of the related features of a drawing
- D. directly derived from the values given on a drawing

Q9 Part B (Electrician)

In the context of earthing in an electrical system, _____ has the greatest impact on earth resistance.

- A. the length of the earthing conductor
- B. the voltage applied to the ground
- C. the material of the grounding rod
- D. soil resistivity ✓



Q10 Part B (Electrician)

Alternators run at a speed _____ synchronous speed.

- A. less than or greater than
- B. equal to ✓
- C. only less than
- D. only greater than

Q11 Part B (Electrician)

In rotating armature type alternator, magnetic field is produced by:

- A. Slip rings on rotor
- B. DC electromagnets placed on stator ✓
- C. Slip rings and brushes
- D. Commutator

Q12 Part B (Electrician)

In a velocity-time graph, the negative slope represents _____.

- A. retardation ✓
- B. displacement
- C. acceleration
- D. distance

Q13 Part B (Electrician)

What is the phase difference between the line voltage and phase voltage in a star-connected load?

- A. 30°
- B. 120°
- C. 0° ✓
- D. 90°

Q14 Part B (Electrician)

In a three-phase, balanced system, if the load is purely resistive, the line current is _____.

- A. in phase with the line voltage ✓
- B. 90° ahead of the line voltage
- C. unrelated to the line voltage
- D. 90° behind the line voltage

Q15 Part B (Electrician)

A circuit consists of three resistors; 15 ohms, 10 ohms, and 20 ohms. The 15-ohm resistor is in series with the parallel combination of the 10-ohm and 20-ohm resistors. If a 24 V battery is applied across the circuit, what is the total current flowing through the circuit?

- A. 3.1 A
- B. 0.1 A
- C. 1.1 A ✓
- D. 2.1 A

Q16 Part B (Electrician)

What is the main purpose of continuity testing in a DC generator?

- A. To detect open or broken windings ✓
- B. To test insulation resistance
- C. To measure current flow
- D. To check voltage regulation

Q17 Part B (Electrician)

A 220 V shunt generator has a field resistance of 110 Ω . What is the field current?

- A. 10 A
- B. 20 A
- C. 5 A
- D. 2 A ✓

Q18 Part B (Electrician)

For what purpose are pins and clips used in engineering drawings?

- A. To transfer dimensions and dividing lines into a number of equal parts
- B. To draw horizontal lines, parallel lines and to guide/hold the set squares
- C. To fasten the drawing sheet on to the drawing board firmly so that it does not shake ✓
- D. To support the drawing paper/tracing paper for making drawings

Q19 Part B (Electrician)

A transformer's open circuit test is used to determine:

- A. core losses and no load current ✓
- B. stray loss
- C. windage loss
- D. copper loss



Q20 Part B (Electrician)

Which of the following types of pliers is used to shape loops in wires and to form curves in light metal strips?

- A. Flat nose pliers
- B. Round nose pliers ✓
- C. Slip-joint pliers
- D. End cutting pliers

Q21 Part B (Electrician)

A three-phase AC circuit is connected with star connected balanced load of $100\ \Omega$. If phase voltage of each phase is 200 V, the current in each phase will be ____.

- A. 1 A
- B. 2 A ✓
- C. 4 A
- D. 0.5 A

Q22 Part B (Electrician)

Which of the following statements is NOT true if any electrical system is not properly earthed?

- A. It provides voltage constant voltage supply regardless of perturbation in load side. ✓
- B. It may lead to damage of electrical equipment.
- C. It can increase the risk of electric shock.
- D. It may cause the electric current to flow in an uncontrolled manner.

Q23 Part B (Electrician)

When measuring the resistance of a resistor using an ohmmeter, what does a reading of zero resistance indicate?

- A. The resistor is functioning normally.
- B. The resistor is open-circuited.
- C. The resistor is short-circuited. ✓
- D. The ohmmeter is malfunctioning.

Q24 Part B (Electrician)

The unit for specific gravity is ____.

- A. m/s^2
- B. g/cm^3
- C. kg/m^3
- D. no unit (dimensionless) ✓

Q25 Part B (Electrician)

Which of the following organisations is responsible for enforcing workplace safety regulations in India?

- A. World Health Organization (WHO)
- B. Food and Drug Administration (FDA)
- C. Directorate General of Factory Advice Service and Labour Institutes (DGFASLI) ✓
- D. Environmental Protection Agency (EPA)

Q26 Part B (Electrician)

What is a key advantage of using MOSFETs in electronic circuits compared to other types of transistors?

- A. High frequency response
- B. High input impedance and low power consumption ✓
- C. Ability to handle higher voltages and currents than BJTs
- D. Ability to amplify both AC and DC signals

Q27 Part B (Electrician)

What is the primary reason for electrical injuries when a person comes in contact with electrical equipment?

- A. Electrical equipment is not properly grounded.
- B. Current flows through the body causing harm. ✓
- C. Devices are used for too long.
- D. Electrical devices are too powerful.

Q28 Part B (Electrician)

Which of the following instruments is used to test the earth resistance of an earthing system?

- A. Multimeter
- B. Megger ✓
- C. Clamp meter
- D. Oscilloscope

Q29 Part B (Electrician)

A drawing instrument box is used to carry all _____ instruments.

- A. drawing ✓
- B. screening
- C. drilling
- D. casting



Q30 Part B (Electrician)

Which of the following hand-operated drilling machines is used for drilling small diameter holes up to 6 mm?

- A. Electric hand drill
- B. Ratchet drilling machine
- C. Breast drilling machine
- D. Bevel gear type drilling machine ✓

Q31 Part B (Electrician)

What happens if the gate current is removed while a TRIAC is conducting?

- A. The TRIAC will stop conducting.
- B. The TRIAC will remain conducting until the current falls below the holding current. ✓
- C. The TRIAC will not be affected.
- D. The TRIAC will behave like a short circuit.

Q32 Part B (Electrician)

What is the basic working principle of a DC generator?

- A. Electrostatic induction
- B. Mutual induction
- C. Faraday's law of electromagnetic induction ✓
- D. Lenz's law

Q33 Part B (Electrician)

Where are ceramic capacitors commonly used?

- A. Mobile Phones
- B. High-power motors
- C. TV circuits ✓
- D. Transformers

Q34 Part B (Electrician)

Air-cored inductors are most commonly used in circuits operating at/in:

- A. high frequencies from 1 MHz to several hundred MHz ✓
- B. DC power supply circuits
- C. low frequencies below 50 Hz
- D. audio frequency range (20 Hz – 20 kHz)

Q35 Part B (Electrician)

Read the given statements carefully and select the correct option.

Statement 1: Plate earthing ensures a low-resistance path for fault current to safely flow into the earth.

Statement 2: The resistance of the earthing system is not affected by the soil type or moisture content.

- A. Both Statement 1 and Statement 2 are correct.
- B. Statement 1 is incorrect, but Statement 2 is correct.
- C. Statement 1 is correct, but Statement 2 is incorrect. ✓
- D. Both Statement 1 and Statement 2 are incorrect.

Q36 Part B (Electrician)

Which of the following vices consists of a handle and a small collet chuck at one end?

- A. Hand vice
- B. Pin vice ✓
- C. Pipe vice
- D. Toolmaker's vice

Q37 Part B (Electrician)

What is the advantage of giving heat treatment to a material?

- A. To decrease the melting point of the material
- B. To increase the weight of the material
- C. To change it from one element to another element
- D. To make surgical knives of sharp edges ✓

Q38 Part B (Electrician)

Why is armature resistance control NOT suitable for speed control in high-power DC motors?

- A. It results in poor efficiency due to high power loss. ✓
- B. It causes high torque fluctuations.
- C. It cannot reduce the motor speed.
- D. It increases field current.



Q39 Part B (Electrician)

Which of the following is an important safety measure during a power failure?

- A. Using candles for lighting
- B. Continuing to use equipment without verifying power status
- C. Ensuring all machines and electrical equipment are turned off ✓
- D. Ignoring alarm systems

Q40 Part B (Electrician)

Where are Kit-Kat type fuses commonly used?

- A. Electronic circuits
- B. High-voltage transmission systems
- C. Domestic and small industrial electrical circuits ✓
- D. Power generation plants

Q41 Part B (Electrician)

Low speed diesel engine alternators employ rotor of _____ type.

- A. salient pole construction ✓
- B. cylindrical stator construction
- C. slip ring construction
- D. rotating armature construction

Q42 Part B (Electrician)

When using a multimeter to measure current, which of the following is correct?

- A. The multimeter is connected directly to the power source.
- B. The multimeter is connected in series with the load. ✓
- C. The multimeter is connected only across resistive components.
- D. The multimeter is connected in parallel with the load.

Q43 Part B (Electrician)

IEEE 80 provides recommendations for _____.

- A. standards for electrical insulation materials
- B. voltage regulation in power systems
- C. measurement of electrical power consumption
- D. proper installation of grounding and bonding systems in electrical installations ✓

Q44 Part B (Electrician)

Permeability of ideal transformer core is equal to:

- A. low value
- B. zero
- C. unity
- D. infinite ✓

Q45 Part B (Electrician)

In a lead-acid battery, what is the chemical composition of the material used for the positive plate during discharge?

- A. Sulphuric acid (H_2SO_4)
- B. Lead (Pb)
- C. Lead dioxide (PbO_2) ✓
- D. Lead sulfate (PbSO_4)

Q46 Part B (Electrician)

At what overload percentage does the solenoid attract the armature fully, causing instantaneous tripping in a MCB?

- A. 700% ✓
- B. 130%
- C. 300%
- D. 1000%

Q47 Part B (Electrician)

What is the effect of increasing the field current in a DC shunt motor?

- A. The motor speed increases.
- B. The torque decreases.
- C. The motor stops immediately.
- D. The motor speed decreases. ✓

Q48 Part B (Electrician)

If the current flowing through a conductor is 5 A and the resistance of the conductor is 10 ohms, what will be the voltage across the conductor, according to Ohm's Law?

- A. 15 V
- B. 50 V ✓
- C. 5 V
- D. 10 V



Q49 Part B (Electrician)

Which of the following files is used for filing narrow grooves and angles above 10° ?

- ☒ A. Knife-edge file
- ☐ B. Half round file
- ☐ C. Square file
- ☐ D. Triangular file

Q50 Part B (Electrician)

In the open circuit test of a transformer, the supply frequency should be:

- ☐ A. higher than the rated frequency
- ☒ B. equal to the rated frequency
- ☐ C. independent of the rated frequency
- ☐ D. lower than the rated frequency

Q51 Part B (Electrician)

What is the primary use of a Unijunction Transistor (UJT) in electronic circuits?

- ☒ A. Triggering of SCRs and TRIACs
- ☐ B. Amplification of signals
- ☐ C. Frequency modulation
- ☐ D. Voltage regulation

Q52 Part B (Electrician)

Which of the following factors DOES NOT affect the rating of a fuse?

- ☐ A. The ambient temperature
- ☒ B. The colour of the fuse holder
- ☐ C. The type of electrical load
- ☐ D. The cross-sectional area of the conductor

Q53 Part B (Electrician)

Which component in a magnetic hydraulic MCB holds the ferrous plunger?

- ☒ A. A non-ferrous tube
- ☐ B. A bimetallic strip
- ☐ C. A thermal coil
- ☐ D. A fuse element

Q54 Part B (Electrician)

What should you do to ensure your personal safety at work?

- ☒ A. Wear personal protective equipment.
- ☐ B. Work in a hurry without checking equipment.
- ☐ C. Ignore warning signs and instructions.
- ☐ D. Take risks to finish tasks quickly.

Q55 Part B (Electrician)

Arrange the following steps in the correct order to draw an equilateral triangle with each side of 35 mm.

1. Join CA and CB.
2. Draw a line and mark AB 35 mm as the side of the triangle.
3. With radius AB and center A and B, draw arcs cutting at C.
4. ABC is the required triangle.

- ☒ A. 2, 3, 1, 4
- ☐ B. 1, 2, 4, 3
- ☐ C. 2, 1, 3, 4
- ☐ D. 3, 2, 1, 4

Q56 Part B (Electrician)

A 20 kVA, 2500/250 V, 50 Hz, single phase transformer gave the open circuit test result (on low voltage side) as 250 V and 100 W; then core loss current is:

- ☒ A. 0.4 A
- ☐ B. 0.1 A
- ☐ C. 0.3 A
- ☐ D. 0.2 A

Q57 Part B (Electrician)

Which of the following is a characteristic of an SCR?

- ☒ A. It is a four-layer, three-junction device.
- ☐ B. It cannot control the flow of current.
- ☐ C. It is a two-terminal device.
- ☐ D. It has no gate terminal.

Q58 Part B (Electrician)

Why is it important for every person to follow safety procedures in the workplace?

- ☐ A. To increase overall production efficiency
- ☒ B. To minimise risks and avoid accidents
- ☐ C. To reduce operational costs significantly
- ☐ D. To limit the need for frequent supervision



Q59 Part B (Electrician)

Which of the following parts of a file is the part fitted to the tang for holding the file?

- A. Tip or Point
- B. Handle
- C. Edge
- D. Tang

Q60 Part B (Electrician)

Which of the following is a key safety measure to follow when installing an earthing system?

- A. Use thin copper wires for earthing to reduce costs.
- B. Use flexible conductors for earthing connections.
- C. Ensure the earthing system is properly inspected and tested for safety compliance.
- D. Ensure the earthing system is designed for maximum efficiency.

Q61 Part B (Electrician)

Gaskets, seals and spacers are made using:

- A. centre punch
- B. hollow punch
- C. pin punch
- D. prick punch

Q62 Part B (Electrician)

What is the purpose of an emergency evacuation plan?

- A. To ensure safe and orderly evacuation during emergencies
- B. To avoid safety drills
- C. To increase productivity
- D. To allow workers to leave early

Q63 Part B (Electrician)

According to BIS SP 46-2003, which of the following applications is correctly represented by a chain-thin line in engineering drawings?

- A. Center lines
- B. Hidden edges
- C. Dimension lines
- D. Visible edges

Q64 Part B (Electrician)

Calculate the voltage regulation (in percentage) of the transformer if the no load secondary voltage is 250 V and full load secondary voltage is 200 V?

- A. 20%
- B. 100%
- C. 50%
- D. 25%

Q65 Part B (Electrician)

The magnitude of EMF induced by an alternator is given as: (Given: B is the flux density, L is the length of the conductors, V is the velocity of the rotation and q is the angle at which the conductor cuts the line of force)

- A. $BLV \sin q$
- B. $(BL \sin q)/V$
- C. $(BV \cos q)L$
- D. $BLV \cos q$

Q66 Part B (Electrician)

What is the primary material used in the resistance wire of wire-wound resistors?

- A. Aluminium
- B. Silver
- C. Nichrome
- D. Copper

Q67 Part B (Electrician)

How long does a fuse element take to melt when carrying twice its rated current?

- A. 1 minute
- B. 5 minutes
- C. 30 seconds
- D. 2 minutes

Q68 Part B (Electrician)

Which of the following best describes the construction of a mica capacitor?

- A. A thin polymer film rolled into a cylinder
- B. A ceramic disc with metal coatings
- C. Alternating layers of metal foil and mica sheets
- D. A liquid electrolyte between two aluminium plates



Q69 Part B (Electrician)

A TRIAC (Triode for Alternating Current) is a _____ device.

- A. One-terminal device
- B. Bilateral device ☒
- C. Two-terminal device
- D. Unilateral device

Q70 Part B (Electrician)

What type of components are used for tapping in the ring main system?

- A. Directly from the main supply
- B. Using transformers
- C. Through capacitors
- D. Through fuses and controlling switches ☒

Q71 Part B (Electrician)

$$\left(\frac{3}{8}\right) + \left(\frac{5}{12}\right)$$

- A. $\frac{17}{24}$
- B. $\frac{19}{24}$ ☒
- C. $\frac{8}{20}$
- D. $\frac{7}{12}$

Q72 Part B (Electrician)

In star connected alternator, the relation between line voltage, E_L and phase voltage, E_{ph} is given by:

- A. $E_L = E_{ph}$
- B. $E_L = 3E_{ph}$
- C. $E_L = \frac{1}{3}E_{ph}$
- D. $E_L = \sqrt{3}E_{ph}$ ☒

Q73 Part B (Electrician)

Which of the following options is correct?

Statement 1: In a balanced three-phase system, the power delivered to the load depends on both the phase current and the phase voltage.

Statement 2: The line voltage in a star-connected system is always greater than the phase voltage by a factor of $\sqrt{3}$.

- A. Both Statement 1 and Statement 2 are false.
- B. Statement 1 is true, and Statement 2 is false.
- C. Statement 1 is false, and Statement 2 is true.
- D. Both Statement 1 and Statement 2 are true. ☒



Q74 Part B (Electrician)

$\cos\theta$

A. $\frac{3}{5}$

B. $\frac{4}{5}$ ✓

C. $\frac{5}{4}$

D. $\frac{3}{4}$

Q75 Part B (Electrician)

If two inductors are connected in series with mutual inductance M (aiding), what is the equivalent inductance?

A. $L_{eq} = L_1 + L_2 - 2M$

B. $L_{eq} = \frac{L_1 + L_2}{2}$

C. $L_{eq} = L_1 + L_2 + 2M$ ✓

D. $L_{eq} = \frac{L_1 + L_2}{L_1 * L_2}$



Part B (Electrician)

75 Questions • Answer Key

Q1 Part B (Electrician)

Which type of DC generator has its field winding connected in parallel with the armature?

- A. Series DC generator
- B. Shunt DC generator ✓
- C. Separately excited DC generator
- D. Compound DC generator

Q2 Part B (Electrician)

In parallel grouping of capacitors, what happens to the total capacitance?

- A. It remains the same.
- B. It increases. ✓
- C. It becomes zero.
- D. It decreases.

Q3 Part B (Electrician)

Which of the following uses of wire gauge is INCORRECT?

- A. It measures the diameter of a wire.
- B. It does not help determine how much current a wire can carry. ✓
- C. Using the wrong wire gauge can damage appliances and electronic devices.
- D. It is used in electrical installations, welding and other applications.

Q4 Part B (Electrician)

Which of the following is a fundamental unit?

- A. newton
- B. metre ✓
- C. pascal
- D. watt

Q5 Part B (Electrician)

What should be the minimum thickness of the MS clips used for fixing PVC channels under steel joints?

- A. 1.2 mm ✓
- B. 1.7 mm
- C. 0.5 mm
- D. 2.2 mm

Q6 Part B (Electrician)

Which of the following statements is/are correct?

Statement I - The annealing process uses heat to reduce the hardness and increase the ductility and toughness of various steels, cast iron, and alloys.

Statement II - Quenching is a rapid cooling process that alters specific properties of materials by manipulating the cooling rate.

- A. Statement (I) is correct but Statement (II) is incorrect.
- B. Statement (I) and (II) both are correct. ✓
- C. Statement (I) is incorrect but Statement (II) is correct.
- D. Statement (I) and (II) both are incorrect.

Q7 Part B (Electrician)

The SCR (Silicon controlled rectifier) is also called a _____.

- A. transistor
- B. diode
- C. triac
- D. thyristor ✓

Q8 Part B (Electrician)

If the coefficient of linear expansion of a material is $2 \times 10^{-5} \text{ } ^\circ\text{C}^{-1}$, what does it mean?

- A. The material expands by 2×10^{-5} times its original area per degree Celsius
- B. The material expands by 2×10^{-5} times its original volume per degree Celsius
- C. The material expands by 2×10^{-5} times its original length per degree Celsius ✓
- D. The material always increases by 2×10^{-5} kg when temperature is increased by 1°C

Q9 Part B (Electrician)

What is another name for CTS wiring?

- A. Conduit wiring
- B. Batten wiring ✓
- C. Casing and capping wiring
- D. Cleat wiring



Q10 Part B (Electrician)

Which of the following is an example of a p-type semiconductor?

- A. Silicon doped with phosphorus
- B. Silicon doped with arsenic
- C. Silicon doped with boron ✓
- D. Germanium doped with phosphorus

Q11 Part B (Electrician)

The EMF per turn of a single phase 10 kVA, 2200/220 V, 50 Hz transformer is 10 V. Calculate the number of primary and secondary turns, respectively.

- A. 110 and 10
- B. 220 and 22 ✓
- C. 10 and 110
- D. 22 and 220

Q12 Part B (Electrician)

If 'P' is the number of poles on a rotor of an alternator, how many cycles of EMF are completed in one revolution?

- A. 2P
- B. P
- C. P/4
- D. P/2 ✓

Q13 Part B (Electrician)

A device operates at 240 V and consumes 480 W of power. What is the current flowing through the device?

- A. 2 A ✓
- B. 1 A
- C. 1.5 A
- D. 2.5 A

Q14 Part B (Electrician)

Which power loss is assessed by open-circuit test on transformer?

- A. Winding loss
- B. Copper loss
- C. Core loss ✓
- D. Friction loss

Q15 Part B (Electrician)

In engineering drawing (lettering and numbering), a single stroke means that the _____.

- A. thickness of the line of the letter or number is obtained in one stroke of the pencil ✓
- B. thickness of the line of the letter or number is obtained in three strokes of the pencil
- C. thickness of the line of the letter or number is obtained in no strokes of the pencil
- D. thickness of the line of the letter or number is obtained in two strokes of the pencil

Q16 Part B (Electrician)

If the load on a three-phase system is unbalanced, the power calculation becomes more complex because _____.

- A. the power factor becomes unity
- B. the current in each phase differs, and the total power must be calculated by adding individual phase powers ✓
- C. the line current becomes zero
- D. the line and phase voltages become equal

Q17 Part B (Electrician)

In a Power MOSFET, the gate-to-source voltage (V_{gs}) controls the _____.

- A. gate current
- B. source current
- C. drain current ✓
- D. breakdown voltage

Q18 Part B (Electrician)

Which of the following types of wooden mallets are used for general purpose work such as flattening and bending?

- A. Bossing mallets
- B. Side-faked mallets
- C. Standard wooden mallets ✓
- D. End-faked mallets



Q19 Part B (Electrician)

Select the correct statement regarding grounding and earthing in electrical system.

- A. Grounding is used to protect humans from electric shocks, while earthing is used to reduce power consumption.
- B. The grounding and earthing are related to single phase system.
- C. Grounding and earthing are the same process with no distinction.
- D. Grounding involves connecting the earth to a system's neutral or other conductors, while earthing connects the system's frame or body to the earth. ☒

Q20 Part B (Electrician)

What does an optical pyrometer measure?

- A. The relative density of liquids
- B. The temperature of the surface ☒
- C. The volume of liquids
- D. The pressure of gases

Q21 Part B (Electrician)

Match the correct length and breadth of the Trimmed sizes of sheets.

Designation	Trimmed size
A. A0	P. 297 × 420
B. A1	Q. 420 × 594
C. A2	R. 594 × 841
D. A3	S. 841 × 1189

- A. A - R, B - S, C - Q, D - P
- B. A - P, B - R, C - Q, D - S
- C. A - S, B - R, C - P, D - Q
- D. A - S, B - R, C - Q, D - P ☒

Q22 Part B (Electrician)

Which of the following instruments is used to measure the resistance of an earthing electrode?

- A. Clamp meter
- B. Tachometer
- C. Earth resistance tester ☒
- D. Power analyser

Q23 Part B (Electrician)

Which of the following statements correctly describes the placement and purpose of orientation marks on a drawing sheet?

- Orientation marks are placed at two opposite corners of the drawing sheet to indicate the correct orientation on the drawing board.
- Orientation marks consist of arrow heads placed across the frame, with one at the shorter side and one at the longer side, coinciding with the centering marks.
- One of the orientation marks always points towards the draughtsman, indicating the direction in which the drawing sheet should be placed.
- Orientation marks are used to mark the midpoint of each side of the drawing sheet for accurate centering.

- A. 1, 2, and 3 only
- B. 1 and 4 only
- C. 2 and 3 only ☒
- D. 1, 2, and 4 only

Q24 Part B (Electrician)

A resistor has these colour bands: Brown, Black, Red and Gold. What is its resistance value?

- A. 10 $\Omega \pm 5\%$
- B. 100 $\Omega \pm 5\%$
- C. 10,000 Ω (10 k Ω) $\pm 5\%$
- D. 1,000 Ω (1 k Ω) $\pm 5\%$ ☒

Q25 Part B (Electrician)

Which of the following is true for an alternator?

- A. Alternator is a DC machine.
- B. Alternator is an AC induction generator.
- C. Alternator is a synchronous motor.
- D. Alternator is a synchronous generator. ☒

Q26 Part B (Electrician)

In an unbalanced three-phase system, the neutral current will _____.

- A. be equal to the ratio of phasor sum of phase voltage of any two phases to the total impedance of both phases
- B. always be zero
- C. be equal to the ratio of phase voltage of any phase to the impedance of that phase
- D. be equal to the phasor sum of the unbalanced currents ☒



Q27 Part B (Electrician)

Which of the following is a key advantage of using Thyristors in power control applications?

- ☒ A. High frequency switching
- ☐ B. High efficiency and low power loss
- ☐ C. Small size and low cost
- ☐ D. Low voltage handling capabilities

Q28 Part B (Electrician)

What is waste?

- ☐ A. Natural resources for living organisms
- ☐ B. Valuable substances for agriculture
- ☐ C. Useful materials for industries
- ☒ D. Unwanted or unusable materials

Q29 Part B (Electrician)

Which of the following maintenance practices helps prevent overheating in a DC motor?

- ☒ A. Regular lubrication of bearings
- ☐ B. Reducing field current
- ☐ C. Disconnecting the load frequently
- ☐ D. Increasing armature resistance

Q30 Part B (Electrician)

A shunt release in an MCCB is commonly used for:

- ☐ A. overcurrent protection
- ☐ B. improving power factor
- ☒ C. remote tripping of the MCCB
- ☐ D. voltage stabilisation

Q31 Part B (Electrician)

Which of the following parts of a hammer-head is used for shaping and forming work like riveting and bending?

- ☐ A. Face
- ☐ B. Eyehole
- ☒ C. Pein
- ☐ D. Cheek

Q32 Part B (Electrician)

Which type of material is used to protect the transformer winding from the core?

- ☐ A. Steel
- ☒ B. Mica
- ☐ C. Water
- ☐ D. Iron

Q33 Part B (Electrician)

Which type of wiring is used only for temporary installations?

- ☐ A. Casing and capping wiring
- ☐ B. Conduit wiring
- ☐ C. CTS wiring
- ☒ D. Cleat wiring

Q34 Part B (Electrician)

What is the chemical effect that occurs in a battery during the charging process of a Lead Acid battery?

- ☐ A. Lead reacts with sulphur to form lead sulphate
- ☐ B. Water dissociation into hydrogen and oxygen
- ☒ C. Lead sulphate decomposes into lead and sulphuric acid
- ☐ D. Sulphuric acid dissociates into hydrogen and sulphate ions

Q35 Part B (Electrician)

In which application is a Gate Turn-Off Thyristor (GTO) used?

- ☐ A. Audio amplifiers
- ☒ B. Power inverters and motor drives
- ☐ C. Low-power digital circuits
- ☐ D. High-speed communication systems

Q36 Part B (Electrician)

Which type of semiconductor material is typically used to construct a DIAC?

- ☐ A. Copper
- ☐ B. Aluminium
- ☒ C. Silicon
- ☐ D. Gallium Arsenide



Q37 Part B (Electrician)

What is the primary purpose of implementing Lockout/Tagout (LOTO) procedures when working on a DC motor?

- A. To improve motor cooling
- B. To prevent accidental startup during maintenance ✓
- C. To measure motor speed
- D. To increase motor efficiency

Q38 Part B (Electrician)

Pencils are rated in engineering drawings based on the _____.

- A. hardness or softness of the lead ✓
- B. colour of the lead
- C. durability of the lead
- D. shape of the lead

Q39 Part B (Electrician)

What is the primary principle behind the generation of electrical energy in a piezoelectric device?

- A. Conversion of thermal energy into electrical energy
- B. Conversion of chemical energy into electrical energy
- C. Conversion of light energy into electrical energy
- D. Conversion of mechanical stress into electrical energy ✓

Q40 Part B (Electrician)

A DC generator delivers a load current of 25 A at 200 V. If the generated EMF is 205 V, what is the armature resistance?

- A. 0.2Ω ✓
- B. 0.4Ω
- C. 0.3Ω
- D. 0.1Ω

Q41 Part B (Electrician)

What does inductance (L) oppose in a circuit?

- A. Change in voltage
- B. Change in current magnitude ✓
- C. Change in frequency
- D. Change in resistance

Q42 Part B (Electrician)

What is the maximum allowable distance of the screw from the end point of a joint during installation of PVC channel?

- A. 15 cm ✓
- B. 10 cm
- C. 5 cm
- D. 20 cm

Q43 Part B (Electrician)

What is the holding current in a DIAC?

- A. The current required to break down the junction
- B. The current that flows when the device is turned off
- C. The current needed to trigger the device into conduction
- D. The current required to keep the DIAC in conduction once it starts ✓

Q44 Part B (Electrician)

Which of the following IEEE standards focuses on the grounding of electrical systems and equipment?

- A. IEEE 80 ✓
- B. IEEE 519
- C. IEEE 1547
- D. IEEE 1100

Q45 Part B (Electrician)

Which of the following punches is used to make deeper witness marks on scribed lines and make it easier for the drill to start correctly?

- A. Solid punch
- B. Centre punch ✓
- C. Pin punch
- D. Prick punch

Q46 Part B (Electrician)

When drawing a curved line of a specific length in an engineering drawing, which tool is most appropriate for ensuring accuracy?

- A. Protractor
- B. Straightedge
- C. French Curve ✓
- D. Compass



Q47 Part B (Electrician)

When did India implement the Hazardous Wastes (Management and Handling) Rules to regulate the disposal and handling of hazardous waste?

- A. 1987
- B. 2000
- C. 1989
- D. 1982

**Q48 Part B (Electrician)**

In engineering drawing, what is defined as the path of a moving point with no thickness?

- A. Angle
- B. Curve
- C. Point
- D. Line

**Q49 Part B (Electrician)**

If a machine has an efficiency of 80%, it means:

- A. the machine produces more output than input
- B. the machine has a velocity ratio and mechanical advantage both equal to 80
- C. the machine does not have any loss in input energy
- D. the machine loses 20% of the input

**Q50 Part B (Electrician)**

In a single-phase transformer, which instrument is used to check continuity between the primary and secondary windings when they are not energised?

- A. Use a multimeter set to ohms
- B. Use a multimeter set to voltage
- C. Use a multimeter set to current
- D. Use an energy meter

**Q51 Part B (Electrician)**

What happens to inductive reactance, when frequency increases?

- A. It becomes zero.
- B. It increases.
- C. It decreases.
- D. It remains the same.

**Q52 Part B (Electrician)**

Which of the following punch marks is used for the correct location and seating of the divider point?

- A. Centre punch marks of 30°
- B. Centre punch marks of 60°
- C. Prick punch marks of 120°
- D. Prick punch marks of 30°

**Q53 Part B (Electrician)**

What is the main difference between grounding and earthing in a three-phase system?

- A. Grounding provides a return path for current, while earthing provides a safe path for fault current.
- B. Grounding and earthing are used interchangeably, with no major difference.
- C. Grounding is used to protect electrical appliances from surge voltages, while earthing is used to prevent system overloads.
- D. Grounding connects only the body of the electrical equipment to the earth, whereas earthing is associated with the neutral conductor.

**Q54 Part B (Electrician)**

What is the significance of the term 'equipotential bonding' in the context of IEEE regulations for earthing?

- A. It ensures that electrical systems operate at different voltage levels.
- B. It is a method to increase the resistance of the grounding system.
- C. It refers to the insulation of electrical cables.
- D. It refers to ensuring that all metallic parts of electrical systems are connected together to maintain the same electrical potential.

**Q55 Part B (Electrician)**

What is the most likely cause if a DC motor runs in the wrong direction?

- A. Faulty bearings
- B. Incorrect field or armature wiring connections
- C. High armature resistance
- D. Worn-out brushes



Q56 Part B (Electrician)

What force (effort) will be required to push a load, initially at rest, of mass 500 g, so that at a distance of 20 m, its final velocity is 20 m/sec [Assume that there is no friction and 'g' = 10 m/s²].

A. 5 J

B. 10 N

C. 5 N



D. 10 J

Q57 Part B (Electrician)

A 6-pole alternator is running and producing a frequency of 50 Hz. If the frequency is decreased to 20 Hz, how many poles will be required, if the alternator is to be run at the same speed?

A. 6

B. 8

C. 4

D. 2

**Q58 Part B (Electrician)**

In a balanced three-phase system, the phase angles between the line-to-line voltages are _____.

A. 90°

B. 120°



C. 0°

D. 60°

Q59 Part B (Electrician)

What is the recommended action if a DC motor produces excessive sparking at the brushes?

A. Reduce the motor speed

B. Increase the supply voltage

C. Replace worn-out brushes and clean the commutator



D. Add resistance to the armature circuit

Q60 Part B (Electrician)

The total power delivered by a balanced three-phase system is _____.

A. the sum of the individual powers of any two phases

B. the average of the powers in all three phases

C. the product of the phase voltage and current of any one phase

D. the sum of the individual powers in each phase

**Q61 Part B (Electrician)**

Why is it important to follow proper disposal procedures for industrial waste?

A. To allow waste to decompose anywhere

B. To reduce the number of trash bins needed

C. To save time and effort in sorting waste

D. To comply with environmental regulations and reduce pollution

**Q62 Part B (Electrician)**

Which of the following processes is used to manufacture thick film resistors?

A. Pasting metal compound and powdered glass on a ceramic base



B. Embedding metal wire in ceramic

C. Spraying metal powder on a ceramic base

D. Coating a metal rod with ceramic

Q63 Part B (Electrician)

Salient pole type alternator has a _____ diameter and a _____ axial length for low speed of operation.

A. short, large

B. short, short

C. large, large

D. large, short

**Q64 Part B (Electrician)**

Which of the following statements is correct about a protractor?

Statements:

1. A protractor can be used to measure angles from both sides.

2. A protractor is typically made of a rigid metal material.

A. Neither statement is true

B. Only statement 2 is true

C. Only statement 1 is true



D. Both statements are true



Q65 Part B (Electrician)

Which of the following is the key difference between a fuse and a circuit breaker?

- A. A fuse can be reset after tripping, while a circuit breaker must be replaced.
- B. A fuse is used for high-voltage circuits, while a circuit breaker is used for low-voltage circuits.
- C. A fuse is a mechanical device, while a circuit breaker is an electronic device.
- D. A fuse is a one-time-use device, while a circuit breaker can be reset and reused. ✓

Q66 Part B (Electrician)

What determines the appropriate current rating of a fuse in a circuit?

- A. The smallest cable rating in the circuit ✓
- B. The number of electrical devices connected
- C. The length of the circuit wires
- D. The voltage supplied to the circuit

Q67 Part B (Electrician)

Which of the following methods is used to reduce earth resistance in an earthing system?

- A. Increasing the depth of the ground electrode ✓
- B. Using larger conductors for grounding
- C. Reducing the distance between the earth and the neutral
- D. Using insulated grounding cables

Q68 Part B (Electrician)

A capacitor with a capacitance of $10\ \mu\text{F}$ is connected in series with a $1\ \text{M}\Omega$ resistor. How much time will it take for the capacitor to reach 90% of its final charge?

- A. 10.5 seconds
- B. 50.2 seconds
- C. 35.7 seconds
- D. 23.03 seconds ✓

Q69 Part B (Electrician)

Which of the following losses remains variable during normal operation of transformer?

- A. Copper loss ✓
- B. Hysteresis loss
- C. Eddy current loss
- D. Stray loss

Q70 Part B (Electrician)

Which of the following types of wooden mallets are used for hollowing panel beatings?

- A. Standard wooden mallets
- B. End-faked mallets
- C. Side-faked mallets
- D. Bossing mallets ✓

Q71 Part B (Electrician)

What will be the eddy current loss if the supply frequency of a transformer becomes double?

- A. Four times ✓
- B. No change
- C. Double
- D. Half

Q72 Part B (Electrician)

What is the blade length of the T1 'T' square, as per IS:1360-1989?

- A. 500 mm
- B. 1500 mm
- C. 700 mm
- D. 1000 mm ✓



Q73 Part B (Electrician)

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

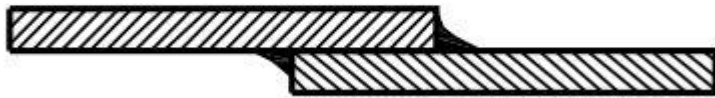
Assertion: The line voltage in a star-connected system is $\sqrt{3}$ times the phase voltage.

Reasoning: In a star connection, the line voltage is the vector sum of the phase voltages, resulting in a $\sqrt{3}$ factor between them.

- A. Assertion is correct, but Reason is incorrect.
- B. Assertion is incorrect, but Reason is correct.
- C. Both Assertion and Reason are correct, but the Reason is not the correct explanation for the Assertion.
- D. Both Assertion and Reason are correct, and the Reason is the correct explanation for the Assertion. ✓

Q74 Part B (Electrician)

Identify the type of brazed joint shown below.



- A. Joggle Lap
- B. Simple Lap ✓
- C. Strapped Lap
- D. Butted Flange

Q75 Part B (Electrician)

If 'P' is the number of poles on a rotor of an alternator, 'n' is the number of revolutions made per second by the rotor, then the frequency will be:

- A. $f = 120P \cdot n$
- B. $f = P \cdot n$
- C. $f = \frac{P \cdot n}{120}$
- D. $f = \frac{P}{2} n$ ✓



Part B (Electrician)

75 Questions • Answer Key

Q1 Part B (Electrician)

Which of the following is a major risk associated with fuel spillage?

- A. Fire hazards and environmental contamination ✓
- B. Better lubrication for workshop floors
- C. Increased productivity
- D. Reduced need for ventilation

Q2 Part B (Electrician)

Why is a DC compound generator preferred for industrial loads?

- A. It has no losses.
- B. It is easier to manufacture.
- C. It provides better efficiency.
- D. It has constant voltage characteristics. ✓

Q3 Part B (Electrician)

The accuracy of measurement by a try square is about:

- A. 0.02 mm per 10 mm length
- B. 0.001 mm per 10 mm length
- C. 0.004 mm per 10 mm length
- D. 0.002 mm per 10 mm length ✓

Q4 Part B (Electrician)

What are the two types of mica capacitors?

- A. Ceramic and film capacitors
- B. Electrolytic and paper capacitors
- C. Variable and fixed capacitors
- D. Stacked foil and silvered mica capacitors ✓

Q5 Part B (Electrician)

Which DC motor type provides the best speed regulation under varying loads?

- A. DC Series Motor
- B. Cumulative Motor
- C. DC Shunt Motor ✓
- D. Permanent Magnet DC Motor

Q6 Part B (Electrician)

In an N-channel MOSFET, the drain current I_D increases as _____.

- A. the gate-to-source voltage increases above the threshold voltage ✓
- B. the gate-to-source voltage decreases
- C. the drain-to-source voltage increases
- D. the source-to-drain voltage decreases

Q7 Part B (Electrician)

What is the pinch-off voltage in a FET?

- A. The voltage where the drain-to-source voltage causes breakdown
- B. The voltage at which the channel is "pinched off" and the current saturates ✓
- C. The voltage at which the drain-to-source current is maximised
- D. The voltage at which the gate-to-source voltage is zero

Q8 Part B (Electrician)

Which of the following statements is/are true about Non-Functional Dimensions (NF) in engineering drawing?

Statement 1: Non-functional Dimensions are shown without limits, as they do not affect the functionality of the component or space.

Statement 2: Non-Functional Dimensions are typically used for reference purposes only, and do not impact the assembly or performance of the component or space.

- A. Only statement 2 is true ✓
- B. Only statement 1 is true
- C. Both statements are true
- D. Neither statement is true

Q9 Part B (Electrician)

Which electrical component is used to perform a polarity test to check whether or not the switches are connected in phase/live cable?

- A. Megger
- B. Ammeter
- C. Multimeter
- D. Test lamp ✓



Q10 Part B (Electrician)

What is the primary reason for conducting a vehicle road test?

- A. To test how fast the vehicle can go
- B. To avoid the need for inspections
- C. To increase fuel efficiency
- D. To ensure the vehicle is functioning safely and correctly ✓

Q11 Part B (Electrician)

What is the unit of measurement for earth fault loop impedance?

- A. Amperes (A)
- B. Ohms (Ω) ✓
- C. Volts (V)
- D. Farads (F)

Q12 Part B (Electrician)

Which of the following is a key electrical safety tip in a workshop?

- A. Operate machines with wet hands
- B. Ignore frayed wires if the device is still working
- C. Use water to clean electrical panels
- D. Ensure electrical equipment is properly grounded ✓

Q13 Part B (Electrician)

The RMS value of emf per phase of alternator is given by _____.

(Given: Φ = flux per pole, f = frequency of induced emf, T is the number of coils or turns per phase and Z is the number of conductors or coil sides in series/phase in an alternator)

- A. $4.44 \Phi Z$
- B. $2.22 \Phi f T$
- C. $4.44 \Phi f T$ ✓
- D. $4.44 \Phi f Z$

Q14 Part B (Electrician)

What is the primary purpose of preventive maintenance?

- A. To increase the workload of employees
- B. To reduce unexpected equipment failures ✓
- C. To delay repairs until breakdowns occur
- D. To eliminate the need for regular inspections

Q15 Part B (Electrician)

Which of the following screwdrivers has cross-shaped tips that are unlikely to slip from the cruciform slots in Philips recessed head screws?

- A. Stumpy screwdriver
- B. Offset screwdriver
- C. Cross-recess screwdriver ✓
- D. Ratchet screwdriver

Q16 Part B (Electrician)

Which of the following statements about a star connected three phase system is correct?

- A. There are two neutral wires in a star connected three phase system.
- B. The neutral wire carries no current in case of balanced ideal load. ✓
- C. The neutral wire is used for grounding purposes only.
- D. The neutral wire has higher voltage than the phase wires.

Q17 Part B (Electrician)

In pipe earthing, what is used to connect the earthing conductor to the pipe?

- A. ✓
- B.
- C.
- D.

Q18 Part B (Electrician)

In the context of earthing system measurement, what does 'Earth resistance' refer to?

- A. The resistance between any two points of the ground with a distance of 1 metre
- B. The resistance between the live wire and the earth
- C. The ability of the ground to resist current flow ✓
- D. The voltage required to activate the earthing system

Q19 Part B (Electrician)

Which of the following types of resistors is preferred for high-current applications?

- A. Film resistor
- B. Wire-wound resistor ✓
- C. Variable resistor
- D. Carbon composition resistor



Q20 Part B (Electrician)

Which of the following is true for a system with an unbalanced load of a three-phase system?

- A. In an unbalanced three-phase system, the neutral current is zero.
- B. The sum of the line currents is not necessarily zero.
- C. The sum of phase angles of each phase is always 120° .
- D. The line voltages are always equal. ✓

Q21 Part B (Electrician)

The region of operation in a FET where the drain current is independent of the drain voltage and only depends on the gate-to-source voltage is called the _____.

- A. saturation region ✓
- B. active region
- C. cutoff region
- D. ohmic region

Q22 Part B (Electrician)

Which of the following methods is used for synchronising a three-phase alternator?

- A. Kramer's Method
- B. One Wattmeter method
- C. Three Dark lamp method ✓
- D. Using damper grids in pole faces

Q23 Part B (Electrician)

Two coils, A and B, have self-inductances of $120\ \mu\text{H}$ and $300\ \mu\text{H}$, respectively. When a current of $1\ \text{A}$ flows through coil A, it induces a flux linkage of $100\ \mu\text{Wb}$ turns in coil B. What is the mutual inductance between the coils?

- A. $50\ \mu\text{H}$
- B. $100\ \mu\text{H}$ ✓
- C. $120\ \mu\text{H}$
- D. $300\ \mu\text{H}$

Q24 Part B (Electrician)

_____ recommend(s) 20 mm wide margins for sheet sizes AO and A1 in engineering drawings.

- A. Borders and frames: SP: 46 (2003) ✓
- B. Geographic coordinate systems
- C. Custom grids
- D. Grid reference system

Q25 Part B (Electrician)

What is the term used to describe programs that distinguish between uppercase and lowercase letters, treating "yes" and "YES" as different inputs?

- A. Case-insensitive
- B. Numerical
- C. Case-sensitive ✓
- D. Alphabetical

Q26 Part B (Electrician)

Why are alternators connected in parallel?

- A. To meet greater power demand of load circuit ✓
- B. To improve the power factor
- C. To increase the starting torque
- D. To increase the output frequency

Q27 Part B (Electrician)

A rectangular floor measuring $10\ \text{m} \times 8\ \text{m}$ is to be tiled. If each tile covers $0.25\ \text{m}^2$, how many tiles are needed?

- A. 200
- B. 300
- C. 320 ✓
- D. 250

Q28 Part B (Electrician)

How should the electrode resistance be measured if multiple earthing electrodes are used in parallel?

- A. Measure electrode resistance individually and then add it
- B. Use a clamp meter to measure the resistance of parallel electrodes
- C. Measure electrode resistance individually and then average the values
- D. Measure the total resistance of the combined electrodes in parallel ✓

Q29 Part B (Electrician)

Connection of voltage transformer and current transformer across line are _____, respectively.

- A. series and parallel ✓
- B. series and series
- C. parallel and series
- D. parallel and parallel



Q30 Part B (Electrician)

What should be the position of the 'OFF' marking on a fireman's switch?

A. At the top



B. In the centre

C. At the bottom

D. On the side

Q31 Part B (Electrician)

The SI unit of 'ultimate stress' is _____.

A. pascal (Pa)



B. newton (N)

C. newton per meter (N/m)

D. joule per square meter (J/m^2)

Q32 Part B (Electrician)

In a circuit with a NTC type thermistor and a fixed resistor connected in series connected to a DC power supply, what will happen to the output voltage if there is a rise in temperature?

A. The output voltage will increase.



B. The output voltage will remain constant.

C. The output voltage will fluctuate depending on the resistor value.

D. The output voltage will decrease.

Q33 Part B (Electrician)

Why do cars have treaded tyres?

A. To increase friction and grip on the road



B. To reduce weight

C. To decrease friction

D. To increase speed

Q34 Part B (Electrician)

Which component in an MCB is responsible for detecting a short circuit?

A. Bimetallic strip

B. Solenoid



C. Arc chute

D. Handle

Q35 Part B (Electrician)

Which option shows the correct answer when 27°C is converted to the kelvin scale?

A. -300 K

B. 246 K

C. 300 K



D. -246 K

Q36 Part B (Electrician)

In a transformer, insulation resistance test is carried out to measure:

A. frequency

B. magnetic flux

C. the resistance of the insulation between windings and core



D. the inductance between different parts of the transformer

Q37 Part B (Electrician)

An angle greater than 180 degrees is referred to as _____.

A. a right angle

B. an acute angle

C. an obtuse angle

D. a reflex angle

**Q38 Part B (Electrician)**

Sine bars are used when a high degree of accuracy less than _____ is needed for measuring angles.

A. 1 degree

B. 30 degrees

C. 1 minute



D. 30 minutes

Q39 Part B (Electrician)

Which of the following is true when there is an unbalanced star connected load in a three-phase system?

A. The magnitude of current in each phase of the load is equal.

B. The power factor in each phase of the load is equal.

C. The current in the neutral terminal is zero.

D. Imbalance in phase voltages.



Q40 Part B (Electrician)

Which of the following is a primary difference between a primary and a secondary electrochemical cell?

- A. A secondary cell produces more energy than a primary cell.
- B. A primary cell can be recharged, while a secondary cell cannot be recharged.
- C. A primary cell cannot be recharged, while a secondary cell can be recharged. ✓
- D. There is no difference between primary and secondary cells.

Q41 Part B (Electrician)

The correct instant of synchronising is when busbar and incoming machine voltages are of _____ magnitude and have _____ frequency.

- A. unequal, the same
- B. unequal, unequal
- C. equal, the same ✓
- D. equal, unequal

Q42 Part B (Electrician)

Transformer oil should have _____ dielectric strength and _____ viscosity.

- A. high; high
- B. low; high
- C. high; low ✓
- D. low; low

Q43 Part B (Electrician)

Match the following designations of sheets with their respective trimmed sizes in length and breadth.

Designation Trimmed Size

- A) A0 P) 297 × 420
- B) A1 Q) 420 × 594
- C) A2 R) 594 × 841
- D) A3 S) 841 × 1189

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

Q44 Part B (Electrician)

Which device is used to protect against electric shocks and fires caused by earth leakage currents?

- A. ELCB ✓
- B. MCCB
- C. MCB
- D. ECB

Q45 Part B (Electrician)

In crane and hoist applications, why is a DC series motor preferred over a DC shunt motor?

- A. It requires minimal maintenance compared to other motors.
- B. It maintains constant speed regardless of load variations.
- C. It provides a high starting torque, which is required for lifting loads. ✓
- D. It consumes less power at no load.

Q46 Part B (Electrician)

Which of the following types of DC motor is commonly used in electric traction applications such as trains and trams?

- A. Permanent Magnet DC Motor
- B. DC Compound Motor
- C. DC Series Motor ✓
- D. DC Shunt Motor

Q47 Part B (Electrician)

A statement and conclusion for pictorial drawing are given below. Determine the logical relationship between them.

Statement: Pictorial drawings are three-dimensional and provide a visual representation of an object.

Conclusion: Therefore, pictorial drawings are useful for describing the shape of a piece part or component.

- A. The conclusion does not logically follow from the statement.
- B. The conclusion is partially supported by the statement.
- C. The conclusion is unrelated to the statement.
- D. The conclusion logically follows from the statement. ✓



Q48 Part B (Electrician)

Which of the following actions is a part of the emergency response team's responsibilities during an active emergency?

- A. Preparing reports on emergency incidents
- B. Rescuing persons in immediate danger**
- C. Conducting routine safety checks
- D. Scheduling regular evacuation drills

Q49 Part B (Electrician)

In a logic circuit, three SPST (Single Pole Single Throw) switches are used to implement a logic gate. The switches are connected in series. What is the output of the circuit if all switches are closed?

- A. Undefined
- B. 1**
- C. The output will depend on the type of gate used
- D. 0

Q50 Part B (Electrician)

While performing short circuit test on a transformer to determine its parameter, instruments are placed on the:

- A. low voltage side, while the high voltage side is short circuit
- B. high voltage side, while the low voltage side is short circuit**
- C. high voltage side, while the low voltage side is open circuit
- D. low voltage side, while the high voltage side is open circuit

Q51 Part B (Electrician)

According to Ohm's Law, how is current related to voltage and resistance?

- A. It is directly proportional to voltage and inversely proportional to resistance.**
- B. It has no relation with voltage or resistance.
- C. It is directly proportional to voltage and resistance.
- D. It is inversely proportional to voltage and resistance.

Q52 Part B (Electrician)

The Insulation Resistance value for a transformer is measured in:

- A. megaohms**
- B. ohms
- C. KVA
- D. kilohms

Q53 Part B (Electrician)

What is the maximum total current allowed in a ring circuit as per IEE regulations?

- A.
- B.
- C.**
- D.

Q54 Part B (Electrician)

Natural rubber is soft at high temperatures and brittle at low temperatures; hence raw rubber is heated with sulphur and other additives at a temperature range between 373 – 415 K to make it strong. This process is called ____ of rubber.

- A. vulcanisation**
- B. molding
- C. latex
- D. extrusion

Q55 Part B (Electrician)

Which of the following is a possible cause of an unbalanced load in a three-phase system?

- A. Balanced supply voltages
- B. Equal phase currents
- C. Symmetrical load across phases
- D. Differences in load resistance across phases**

Q56 Part B (Electrician)

What is the primary goal of the 5S concept?

- A. To replace traditional safety measures
- B. To increase the number of safety regulations
- C. To improve workplace organisation and efficiency**
- D. To eliminate the need for maintenance



Q57 Part B (Electrician)

A three phase circuit is connected with balanced delta connected load of impedance $100\ \Omega$. If the current in each phase is 5 A, the voltage across each load will be _____.

- A. 200 V
- B. 250 V
- C. 150 V
- D. 500 V

**Q58 Part B (Electrician)**

Which type of electrolytic capacitor is generally more stable and has better performance in small sizes?

- A. Tantalum capacitor
- B. Mica capacitor
- C. Aluminium capacitor
- D. Ceramic capacitor

**Q59 Part B (Electrician)**

Which of the following is INCORRECT about line standard?

- A. More accurate due to line thickness
- B. Subject to parallax error
- C. Quick measurements over a wide range
- D. Used to measure the distance between two engraved lines

**Q60 Part B (Electrician)**

What is the primary reason for the heating effect in a conductor when an electric current passes through it?

- A. The electric field in the conductor causes heat generation.
- B. The movement of electrons causes heat generation.
- C. The conductor absorbs heat from the surrounding environment.
- D. The movement of protons causes heat generation.

**Q61 Part B (Electrician)**

What is the purpose of measuring the electrode resistance during the installation of an earthing system?

- A. To measure the insulation resistance of the system
- B. To determine the electrical load capacity of the system
- C. To ensure the earthing system has low impedance for fault current dissipation
- D. To ensure proper grounding of electrical equipment

**Q62 Part B (Electrician)**

What is the importance of following the manufacturer's guidelines for DC motor maintenance?

- A. Ensures safe and efficient operation
- B. Modifies the motor's design
- C. Increases the motor's power output
- D. Saves time and resources

**Q63 Part B (Electrician)**

A 100-mm centre-punch could have a 10-mm diameter body and a 6-mm diameter point ground to an angle of _____.

- A. 120°
- B. 90°
- C. 60°
- D. 30°

**Q64 Part B (Electrician)**

For which of the following calipers, a screw and nut are provided for opening and closing the caliper legs?

- A. Spring joint calipers
- B. Firm joint calipers
- C. Simple calipers
- D. Leg and point calipers

**Q65 Part B (Electrician)**

IGBT (Insulated Gate Bipolar Transistor) has _____.

- A. high on-state resistance
- B. second breakdown problems
- C. low input impedance
- D. high input impedance

**Q66 Part B (Electrician)**

Alternators are usually rated in:

- A. Kilo Volt Ampere
- B. Horse Power
- C. Kilo Volt Ampere Reactive
- D. Kilo Watt



Q67 Part B (Electrician)

What is the primary purpose of shielding in electrical cables?

- A. To increase the voltage capacity of the cable
- B. To increase the current-carrying capacity of the cable
- C. To protect the cable from external electromagnetic interference ✓
- D. To prevent heat loss from the cable

Q68 Part B (Electrician)

The primary difference between a FET and a BJT is that _____.

- A. BJTs are more sensitive to temperature than FETs
- B. FETs have a lower input impedance than BJTs
- C. FETs are current-controlled devices, while BJTs are voltage-controlled devices
- D. FETs are voltage-controlled devices, while BJTs are current-controlled devices ✓

Q69 Part B (Electrician)

What is the primary cause of sudden insulation resistance failure in a DC generator?

- A. Moisture ingress or contamination ✓
- B. High ambient temperature
- C. Increase in rotational speed
- D. Excessive armature current

Q70 Part B (Electrician)

Read the Assertion (A) and Reason (R) carefully, and select the correct option.

Assertion (A): The earth resistance must be kept as low as possible to ensure that the earthing system is effective during fault conditions.

Reason (R): A low resistance allows fault current to flow easily into the ground, ensuring safety by preventing electrical hazards.

- A. Both Assertion (A) and Reason (R) are correct, and the reason correctly explains the assertion. ✓
- B. Assertion (A) is incorrect, but Reason (R) is correct.
- C. Both Assertion (A) and Reason (R) are correct, but the reason does not correctly explain the assertion.
- D. Assertion (A) is correct, but Reason (R) is incorrect.

Q71 Part B (Electrician)

What is the objective of testing an earthing system?

- A. To test the current capacity of the earthing system
- B. To check the voltage levels
- C. To measure the insulation resistance of cables
- D. To ensure the system has a low resistance path to the earth ✓

Q72 Part B (Electrician)

Which of the following care and maintenance of a marking table is INCORRECT?

- A. The marking table should be protected from damage.
- B. The marking table should be protected from rust.
- C. After use, the marking table should be cleaned with a soft cloth.
- D. The surface of the marking table should not be given a thin layer of oil. ✓

Q73 Part B (Electrician)

Which of the following conversions are correct?

- A. $1\text{ L} = 1000\text{ dm}^3$ and $1\text{ mL} = 1000\text{ cm}^3$
- B. $1000\text{ L} = 1\text{ dm}^3$ and $1000\text{ mL} = 1\text{ cm}^3$
- C. $1\text{ L} = 1\text{ dm}^3$ and $1\text{ mL} = 1\text{ cm}^3$ ✓
- D. $1000\text{ L} = 1\text{ dm}^3$ and $1\text{ mL} = 1000\text{ cm}^3$



Q74 Part B (Electrician)

The energy stored (W) in an inductor is given by the formula _____, where C = Capacitance, V= Voltage, I = Current, and L= inductance.

A. $W = \frac{1}{2}VI$

B. $W = \frac{1}{2}LI^2$

C. $W = LI$

D. $W = \frac{1}{2}CV^2$

Q75 Part B (Electrician)

The voltage regulation in percentage for transformer is given by:

A. $\text{Voltage regulation} = \frac{V_{\text{no load}} - V_{\text{load}}}{V_{\text{no load}}} \times 100$

B. $\text{Voltage regulation} = \frac{V_{\text{no load}} - V_{\text{load}}}{V_{\text{load}}} \times 100$

C. $\text{Voltage regulation} = \frac{V_{\text{no load}} - V_{\text{no load}}}{V_{\text{load}}} \times 100$

D. $\text{Voltage regulation} = \frac{V_{\text{load}} - V_{\text{no load}}}{V_{\text{load}}} \times 100$



Part B (Electrician)

75 Questions • Answer Key

Q1 Part B (Electrician)

Toroidal inductors are shaped like a:

- A. cone
- B. ring
- C. cube
- D. cylinder



Q2 Part B (Electrician)

Apart from lamp holders, where else is a cord grip or underwriter's knot used?

- A. Pull switches
- B. Earthing systems
- C. High-voltage substations
- D. Circuit breaker panels



Q3 Part B (Electrician)

Convert 8.5% into a decimal.

- A. 0.85
- B. 8.5
- C. 0.085
- D. 85



Q4 Part B (Electrician)

What may happen if a flexible cable in a pendant lamp is not secured with a cord grip or underwriter's knot?

- A. The lamp will consume more power.
- B. The lamp will emit dim light.
- C. The cable connection may come out, leading to a shock hazard.
- D. The ceiling will overheat.



Q5 Part B (Electrician)

For your safety at work, which of the following should be ensured?

1. All the required protective clothing and equipment are used.
2. Training and instruction necessary for performing tasks safely have been received.

- A. Only statement 1
- B. Neither statement 1 nor 2
- C. Only statement 2
- D. Both statements 1 and 2



Q6 Part B (Electrician)

Consider the following statements for a three phase AC circuit.

Statement 1: In a balanced three-phase system, the line current is always equal to the phase current in a star-connected load.

Statement 2: In a delta-connected system, the phase voltage is equal to the line voltage.

Select the correct option based on above statements.

- A. Statement 1 is true, and Statement 2 is false.
- B. Statement 1 is false, and Statement 2 is true.
- C. Both Statement 1 and Statement 2 are true.
- D. Both Statement 1 and Statement 2 are false.



Q7 Part B (Electrician)

If inductance (L) is doubled, what happens to inductive reactance?

- A. It remains the same.
- B. It doubles.
- C. It becomes zero.
- D. It becomes half.



Q8 Part B (Electrician)

Which type of line is used to represent hidden edges or surfaces in a technical drawing, as per BIS SP 46-2003?

- A. Continuous thin line
- B. Continuous thick line
- C. Dashed thin line
- D. Chain thin line



Q9 Part B (Electrician)

For which purpose is mineral oil provided in an oil-filled transformer?

- A. Prevent moisture
- B. Insulation purpose only
- C. Both cooling and insulation purpose** ✓
- D. Cooling purpose only

Q10 Part B (Electrician)

If 50 W of power is applied to the primary of an ideal transformer with a turns ratio of 10, the power delivered to the secondary load is:

- A. 500 W
- B. 100 W
- C. 50 W** ✓
- D. 5 W

Q11 Part B (Electrician)

What is the main reason for using a snubber circuit in IGBT-based circuits?

- A. To increase the switching speed
- B. To minimise the switching losses
- C. To reduce the gate charge
- D. To protect the IGBT from voltage spikes during switching** ✓

Q12 Part B (Electrician)

Which parameters of two identical transformers are determined using Back-to-back test?

- A. Friction loss and resistance
- B. Mechanical loss and inductance
- C. Efficiency and voltage regulation** ✓
- D. Friction loss and inductance

Q13 Part B (Electrician)

Match the following types of lines with their correct descriptions according to their orientation and characteristics.

Description	Type of Line
A. A line that is neither parallel to a horizontal plane nor perpendicular to it.	1. Horizontal line
B. A line that is perpendicular to horizontal lines.	2. Vertical line
C. A line that changes its direction continuously.	3. Inclined line
D. A line that is parallel to a horizontal plane.	4. Curved line

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

Q14 Part B (Electrician)

The key feature of an IGBT is that it combines the characteristics of ____.

- A. a transistor and an amplifier
- B. a diode and a capacitor
- C. a diode and a transistor
- D. a BJT and a MOSFET** ✓

Q15 Part B (Electrician)

Which of the following statements is INCORRECT about end standard?

- A. It measures the distance between two parallel flat surfaces.
- B. Faces are subject to wear.
- C. It is slower but more accurate.
- D. It is used to measure the distance between two engraved lines.** ✓



Q16 Part B (Electrician)

Which of the following characteristics of a GTO is most important for its use in high-power switching applications?

A. Its ability to be turned off by a gate signal. ✓

B. Its high thermal stability.

C. Its ability to handle very low currents.

D. Its fast switching speed.

Q17 Part B (Electrician)

Which of the following types of chisels is used for separating metals after chain drilling?

A. Cross-cut chisel

B. Flat chisel

C. Web chisel ✓

D. Diamond point chisel

Q18 Part B (Electrician)

In a four-band resistor, what does the third band represent?

A. Multiplier ✓

B. First significant digit

C. Tolerance

D. Second significant digit

Q19 Part B (Electrician)

If the length of a resistor is doubled, what happens to its resistance, assuming all other factors remain constant?

A. The resistance is doubled. ✓

B. The resistance remains the same.

C. The resistance is halved.

D. The resistance quadruples.

Q20 Part B (Electrician)

A 100-mm prick punch with a 7-mm diameter body could have a 2.5-mm diameter point ground to an angle of _____.

A. 90°

B. 30° ✓

C. 120°

D. 45°

Q21 Part B (Electrician)

Select the INCORRECT statement with regards to a three-phase star-connected AC circuit.

A. The line voltage is the voltage between any two line of the circuit.

B. The phase voltage is higher than the line voltage. ✓

C. The phase voltage is the voltage between the neutral point and any phase of the circuit.

D. The line voltage is higher than the phase voltage.

Q22 Part B (Electrician)

What does the term 'Ferreed' in Ferreed relay stand for?

A. A type of current sensing relay

B. A combination of ferrite and reed switch ✓

C. A voltage stabiliser component

D. A thermally operated relay

Q23 Part B (Electrician)

According to IEEE 80, the resistance of the ground system should be _____.

A. equal to the system's total load current

B. moderate to prevent excessive current flow

C. as high as possible to ensure efficient operation

D. low enough to allow fault currents to safely dissipate into the earth ✓

Q24 Part B (Electrician)

Which of the following conditions is NOT required for parallel operation of alternator?

A. They may have the same output voltage rating.

B. Alternator should be of the same type.

C. They may have different frequency. ✓

D. Prime movers of alternator should have the same speed load characteristics.

Q25 Part B (Electrician)

The function of slots on stator is to:

A. provide effective cooling

B. excite the field system

C. house the armature conductors ✓

D. strengthen the core



Q26 Part B (Electrician)

Which of the following is the primary reason why copper is widely used as a conductor in electrical wiring?

- ☒ A. Copper has low resistance and high conductivity.
- ☐ B. Copper has a low melting point.
- ☐ C. Copper is abundant and inexpensive.
- ☐ D. Copper has high resistance to electricity.

Q27 Part B (Electrician)

If a DC motor fails to start, what should be checked first?

- ☐ A. Motor shaft alignment
- ☐ B. Field winding resistance
- ☐ C. Commutator polishing
- ☒ D. Power supply connections and voltage

Q28 Part B (Electrician)

In a series circuit, three resistors of 10 ohms, 20 ohms, and R ohms are connected in series with a 12 V battery. What is the value of resistance R if current flowing in the circuit is 0.2 A?

- ☐ A. 10 ohms
- ☐ B. 20 ohms
- ☒ C. 30 ohms
- ☐ D. 40 ohms

Q29 Part B (Electrician)

The gate current in an ideal FET is _____.

- ☒ A. zero
- ☐ B. equal to the drain current
- ☐ C. very high
- ☐ D. proportional to the source current

Q30 Part B (Electrician)

How does an Earth Leakage Circuit Breaker (ELCB) work in an electrical system?

- ☒ A. It compares the incoming and outgoing currents to detect imbalance, indicating leakage to earth.
- ☐ B. It regulates the current flowing to the earth electrode.
- ☐ C. It detects high current flow and trips to prevent overloads.
- ☐ D. It monitors the voltage drop in the system.

Q31 Part B (Electrician)

What is NOT an advantage of using plate earthing over other types of earthing?

- ☒ A. More suitable for high-voltage systems
- ☐ B. Low installation cost
- ☐ C. Requires less maintenance
- ☐ D. Provides low resistance in high-resistivity soil

Q32 Part B (Electrician)

The wave set of hacksaw teeth set has a pitch of _____.

- ☐ A. 2.0 mm
- ☐ B. 0.5 mm
- ☒ C. 0.8 mm
- ☐ D. 1.0 mm

Q33 Part B (Electrician)

Who is authorised to conduct road tests on workshop vehicles?

- ☒ A. Only trained and certified personnel
- ☐ B. Visitors to the workshop
- ☐ C. Any employee
- ☐ D. The company accountant

Q34 Part B (Electrician)

The typical switching speed of GTOs is _____.

- ☒ A. relatively slow
- ☐ B. high
- ☐ C. very fast
- ☐ D. infinity

Q35 Part B (Electrician)

Which of the following 'V' blocks will have one 'V' groove and two grooves (slots) on either side for clamping in two positions?

- ☐ A. Double level single groove 'V' block
- ☐ B. Matched pair 'V' block
- ☒ C. Single level double groove 'V' block
- ☐ D. Single level single groove 'V' block



Q36 Part B (Electrician)

Which of the following statements about title block is/are true?

Statement 1: The title block is situated in the bottom right-hand corner of the drawing sheet.

Statement 2: The contents of the title block are standardised and cannot be modified to suit individual company needs.

- A. Both statements are false
- B. Statement 1 is false, but statement 2 is true
- C. Statement 1 is true, but statement 2 is false ✓
- D. Both statements are true

Q37 Part B (Electrician)

When creating 10 mm single-stroke capital letters in vertical style, what does the 10 mm distance between horizontal parallel lines represent?

- A. Letter width
- B. Letter height ✓
- C. Stroke thickness
- D. Interline spacing

Q38 Part B (Electrician)

Find the lateral surface area of a cube with side length 5 cm.

- A. 125 cm²
- B. 150 cm²
- C. 200 cm²
- D. 100 cm² ✓

Q39 Part B (Electrician)

In electrodynamometer type synchroscope, moving coil is connected:

- A. in parallel with capacitor across terminals of incoming machines
- B. in series with inductance across two phases of busbar
- C. in series with resistance across busbars
- D. between two pressure coils ✓

Q40 Part B (Electrician)

Rotating field type alternator is generally used for rating of up to _____.

- A. 1000 VA
- B. 250 KVA
- C. 100 kVA
- D. 1000 MVA ✓

Q41 Part B (Electrician)

Which of the following statements is NOT correct for using scribes?

- A. Scribe points are very sharp, so they are to be handled very carefully.
- B. While scribing lines, the scribe is used like a pencil.
- C. Do not put the scribe in your pocket.
- D. Place a cork on the point when in use to prevent accidents. ✓

Q42 Part B (Electrician)

What is the main purpose of the field winding in a DC generator?

- A. To conduct load current
- B. To produce the required magnetic field ✓
- C. To reduce armature reaction
- D. To convert AC to DC

Q43 Part B (Electrician)

For a DC motor installation with explosion-proof certification, which standard must be followed for enclosure and wiring compliance?

- A. ANSI C84.1
- B. ISO 9001
- C. IEC 60034-1 ✓
- D. NFPA 70

Q44 Part B (Electrician)

In a long-shunt compound DC generator, the shunt field winding is connected _____.

- A. in series with the armature
- B. in parallel with both armature and series field winding ✓
- C. between the series field and load
- D. only to the load



Q45 Part B (Electrician)

Which of the following terms in the 5S concept refers to making a habit of maintaining the established procedures?

- A. Shine
- B. Set
- C. Sort
- D. Sustain** ✓

Q46 Part B (Electrician)

Increasing which of the following will decrease the inductance of a solenoid?

- A. Core permeability
- B. Length of the coil** ✓
- C. Cross-sectional area
- D. Number of turns

Q47 Part B (Electrician)

A voltmeter with a resistance of 10,000 ohms is connected across a circuit that has a voltage of 50 V. What is the current flowing through the voltmeter?

- A. 2 mA
- B. 1 mA
- C. 5 mA** ✓
- D. 4 mA

Q48 Part B (Electrician)

Which component(s) is/are required to obtain a proportional DC voltage for a voltage sensing relay?

- A. Transformer and rectifier** ✓
- B. Motor and generator
- C. Resistor and inductor
- D. Capacitor and diode

Q49 Part B (Electrician)

The SI unit of temperature is/are ____.

- A. both kelvin and celsius
- B. celsius
- C. kelvin** ✓
- D. fahrenheit

Q50 Part B (Electrician)

In an ideal transformer, the primary and secondary windings resistance is:

- A. 1000 ohm
- B. 0 ohm** ✓
- C. 100 ohm
- D. 1000000 ohm

Q51 Part B (Electrician)

Which of the following best describes the working of a TRIAC?

- A. It is a device used to store energy.
- B. It is a current-controlled device.** ✓
- C. It switches both AC and DC currents.
- D. It is a voltage-controlled device.

Q52 Part B (Electrician)

In a balanced three-phase system, the power delivered by the system depends on _____.

- A. phase current only
- B. power factor only
- C. phase voltage, phase current and power factor** ✓
- D. phase voltage only

Q53 Part B (Electrician)

Which of the following is the most common application of an Earth Leakage Circuit Breaker (ELCB)?

- A. Preventing electrical fires in buildings** ✓
- B. Protecting high-voltage transmission lines
- C. Detecting voltage fluctuations in the system
- D. Protecting electrical appliances from overload

Q54 Part B (Electrician)

What is the minimum age for employment in factories or mines or other hazardous employment, according to Article 24 of the Indian Constitution?

- A. 14 years** ✓
- B. 12 years
- C. 16 years
- D. 18 years



Q55 Part B (Electrician)

Which of the following switch types is required along with an intermediate switch to control a lamp from three or more positions?

A. Two-way switches



B. One-way switches

C. Dimmer switches

D. Push-button switches

Q56 Part B (Electrician)

According to Faraday's law, the magnitude of induced EMF in a DC generator depends on the _____.

A. length of the conductor only

B. resistance of the conductor

C. material of the conductor

D. rate of change of magnetic flux

**Q57 Part B (Electrician)**

What is the SI unit of 'volume'?

A. Litres

B. Cubic centimetre

C. Cubic metre



D. Millilitres

Q58 Part B (Electrician)

When passing stationary vehicles, keep a watch on _____ who may come out suddenly from the front of the stationary vehicle. While overtaking, it should be done on the _____ side. Always keep a good _____ between your vehicle and others.

A. cyclists; left; interval

B. vehicles; right; gap

C. drivers; left; space

D. pedestrians; right; distance

**Q59 Part B (Electrician)**

Which of the following information is necessary to construct a rectangle?

A. Length of two adjacent sides



B. Length of one side and the area of the rectangle

C. Only the length of one side

D. Only the length of the diagonal

Q60 Part B (Electrician)

Which DC motor is preferred in steel rolling mills and elevators?

A. Permanent Magnet DC Motor

B. DC Series Motor

C. Cumulative Compound Motor



D. DC Shunt Motor

Q61 Part B (Electrician)

Transformer is a _____.

A. moving device

B. static device



C. synchronous motor as a rotating transformer

D. rotating device

Q62 Part B (Electrician)

What is the typical temperature range of a mercury-based clinical thermometer?

A. 0°C to 100°C

B. 35°C to 42°C



C. 0°C to 50°C

D. -10°C to 110°C

Q63 Part B (Electrician)

Which of the following statements about earth resistance in context of earthing is true?

A. Earth resistance does not affect electrical safety.

B. Higher earth resistance increases the effectiveness of grounding.

C. Lower earth resistance improves the performance of an electrical system.



D. Earth resistance only affects power transmission efficiency.

Q64 Part B (Electrician)

In a logic circuit, two inputs A and B are applied to an AND gate, and the output of the AND gate is connected to the input of a NOT gate. If the inputs A and B are both at logic 0, what will be the output of the entire circuit?

A. Undefined

B. 0

C. 1



D. 2



Q65 Part B (Electrician)

Which component in a thermal relay is responsible for detecting temperature changes?

A. Bimetallic element



B. Transformer

C. Electromagnet

D. Resistor

Q66 Part B (Electrician)

When should the measurement of electrode resistance be conducted during the installation of an earthing system?

A. After backfilling the earth electrode

B. At the time of initial design

C. Only when the earthing system shows signs of malfunction

D. Before backfilling the earth electrode

**Q67 Part B (Electrician)**

Which of the following colours is commonly used for caution signs?

A. Blue

B. Yellow



C. Red

D. Green

Q71 Part B (Electrician)

In a three-phase system with a line-to-line voltage of 400 V and a line current of 10 A, what is the total real power in Watt, delivered to the load if the power factor is 0.9?

A. $3000\sqrt{3}$ W

B. $4000\sqrt{3}$ W

C. $45000\sqrt{3}$ W

D. $3600\sqrt{3}$ W

**Q72 Part B (Electrician)**

In a three-phase system, if the phase current is 20 A in a delta connection, what is the line current?

A. $20\sqrt{3}$ A



B. 20 A

C. 10 A

D. $\frac{20}{\sqrt{3}}$ A

Q68 Part B (Electrician)

The insulation resistance of any wiring installation should NOT be less than ____ for operating voltage 1000 volt.

A. 100 ohm

B. 1 mega ohm



C. 1 kilo ohm

D. 10 ohm

Q69 Part B (Electrician)

Which of the following calipers are used for marking lines, parallel to inside and outside edges and for locating the centre of round bars?

A. Spring joint calipers

B. Leg and point calipers



C. Simple calipers

D. Firm joint calipers

Q70 Part B (Electrician)

Which of the following metals has the lowest melting point?

A. Mercury



B. Iron

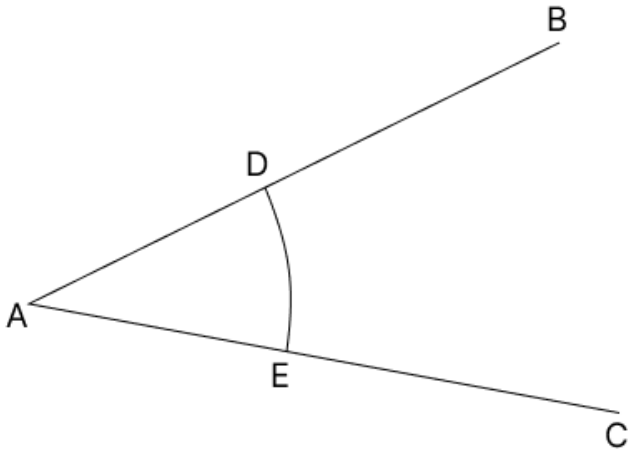
C. Lead

D. Gold



Q73 Part B (Electrician)

In the process of bisecting angle BAC in the given figure, why do we draw arcs from points D and E?

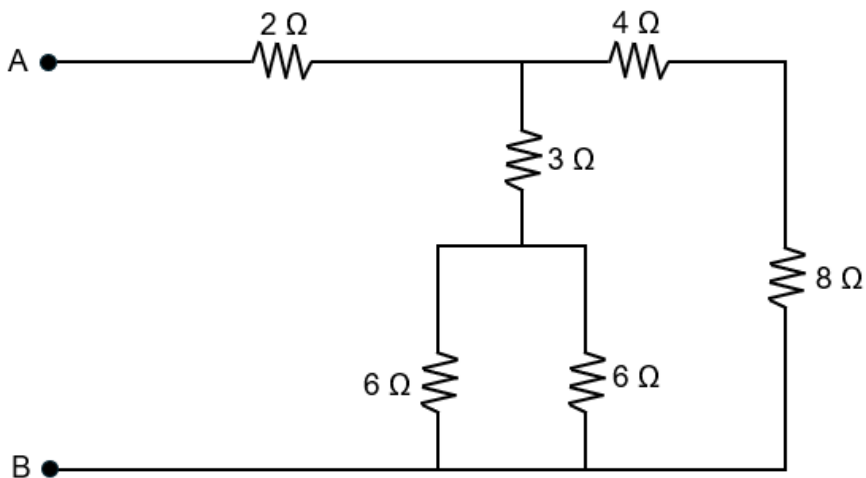


- A. To find midpoint AB
- B. To mark equal lengths
- C. To intersect line AC
- D. To intersect above A



Q74 Part B (Electrician)

After solving the series and parallel combinations, what is the final equivalent resistance between A and B?



- A. $6\ \Omega$
- B. $4\ \Omega$
- C. $8\ \Omega$
- D. $10\ \Omega$



Q75 Part B (Electrician)

What is the formula for the total capacitance of capacitors connected in parallel?

A. $C_{\text{Total}} = C_1 + C_2 + C_3 + \dots$



B. $\frac{1}{C_{\text{TOTAL}}} = \frac{1}{C_1} + \frac{1}{C_2} + \frac{1}{C_3} + \dots$

C. $C_{\text{TOTAL}} = \frac{(C_1 * C_2)}{(C_1 + C_2)}$

D. $C_{\text{TOTAL}} = (C_1 + C_2)^2$

