

Here are 50 multiple-choice questions (MCQs) with answers for the **Technician (Civil and Electrical) II** written interview at the **Tanzania Revenue Authority (TRA)**.

SECTION A: CIVIL ENGINEERING (25 Questions)

1. What is the primary function of a foundation in a building?

- A) To enhance aesthetics
- B) To transfer loads to the ground
- C) To support windows and doors
- D) To increase the height of the structure

Answer: B) To transfer loads to the ground

2. Which type of cement is suitable for marine construction?

- A) Ordinary Portland Cement
- B) Rapid Hardening Cement
- C) Sulphate Resistant Cement
- D) White Cement

Answer: C) Sulphate Resistant Cement

3. The standard size of a brick in Tanzania is:

- A) 150mm × 75mm × 50mm
- B) 190mm × 90mm × 90mm
- C) 230mm × 110mm × 76mm
- D) 300mm × 150mm × 100mm

Answer: C) 230mm × 110mm × 76mm

4. The unit of measurement for concrete is:

- A) Kilograms
- B) Liters
- C) Cubic meters
- D) Square meters

Answer: C) Cubic meters

5. In a beam, reinforcement bars are placed in which zone?

- A) Compression zone
- B) Neutral axis
- C) Tension zone
- D) None of the above

Answer: C) Tension zone

6. What is the main purpose of curing concrete?

- A) To change color
- B) To increase durability
- C) To prevent excessive shrinkage
- D) Both B and C

Answer: D) Both B and C

7. The minimum curing period recommended for concrete in normal weather is:

- A) 3 days
- B) 7 days
- C) 14 days
- D) 28 days

Answer: B) 7 days

8. The slump test is used to measure:

- A) The workability of concrete
- B) The strength of bricks
- C) The setting time of cement
- D) The density of sand

Answer: A) The workability of concrete

9. Which of the following is NOT a type of load acting on a structure?

- A) Dead load
- B) Live load
- C) Torsional load
- D) Magnetic load

Answer: D) Magnetic load

10. The bearing capacity of soil is tested using:

- A) Standard Penetration Test
- B) Proctor Test
- C) Atterberg Test
- D) Slump Test

Answer: A) Standard Penetration Test

11. The best type of aggregate for concrete is:

- A) Rounded
- B) Angular
- C) Flaky

D) Elongated

Answer: B) Angular

12. The minimum thickness of a concrete slab is typically:

A) 50 mm

B) 75 mm

C) 100 mm

D) 125 mm

Answer: C) 100 mm

13. A structure designed to resist earthquake forces is called:

A) Seismic-resistant

B) Wind-resistant

C) Load-bearing

D) None of the above

Answer: A) Seismic-resistant

14. The term "Plinth Level" refers to:

A) The height of the roof

B) The level of the foundation

C) The floor level above the ground

D) The top of the wall

Answer: C) The floor level above the ground

15. In surveying, a theodolite is used for measuring:

A) Distance

B) Angles

C) Height

D) Slope

Answer: B) Angles

SECTION B: ELECTRICAL ENGINEERING (25 Questions)

16. Ohm's Law states that:

A) $V = I \times R$

B) $V = I \div R$

C) $V = R \div I$

D) $V = I \times P$

Answer: A) $V = I \times R$

17. The SI unit of electrical resistance is:

- A) Volt
- B) Ampere
- C) Ohm
- D) Watt

Answer: C) Ohm

18. The device used to measure electric current is:

- A) Voltmeter
- B) Ammeter
- C) Ohmmeter
- D) Wattmeter

Answer: B) Ammeter

19. The three-phase supply system consists of:

- A) One phase and one neutral
- B) Two phases
- C) Three phases and one neutral
- D) Four phases

Answer: C) Three phases and one neutral

20. A fuse is used in an electrical circuit to:

- A) Increase voltage
- B) Prevent overload
- C) Convert AC to DC
- D) Store energy

Answer: B) Prevent overload

21. The efficiency of a transformer is usually:

- A) Less than 50%
- B) Between 50% and 70%
- C) Between 70% and 90%
- D) More than 95%

Answer: D) More than 95%

22. The unit of electrical power is:

- A) Watt
- B) Joule
- C) Newton

D) Ohm

Answer: A) Watt

23. Which type of wiring is commonly used in residential houses?

A) Underground wiring

B) Conduit wiring

C) Overhead wiring

D) Busbar wiring

Answer: B) Conduit wiring

24. The most commonly used insulation material in electrical wiring is:

A) Rubber

B) Copper

C) PVC

D) Aluminum

Answer: C) PVC

25. What is the primary function of a circuit breaker?

A) To store energy

B) To control lighting

C) To protect against overcurrent

D) To convert AC to DC

Answer: C) To protect against overcurrent

26. The standard voltage for household supply in Tanzania is:

A) 110V

B) 220V

C) 400V

D) 12V

Answer: B) 220V

27. Power factor in an electrical system is defined as:

A) Real power / Apparent power

B) Voltage \times Current

C) Resistance \times Current

D) Apparent power / Real power

Answer: A) Real power / Apparent power

28. A capacitor is used in electrical circuits to:

- A) Store charge
 - B) Produce resistance
 - C) Generate power
 - D) Convert DC to AC
- Answer:** A) Store charge

29. A step-up transformer increases:

- A) Power
 - B) Current
 - C) Voltage
 - D) Frequency
- Answer:** C) Voltage

30. What is the function of an earth wire?

- A) To carry current
 - B) To prevent shock
 - C) To increase power
 - D) To supply voltage
- Answer:** B) To prevent shock

Here are **20 more multiple-choice questions (MCQs)** to complete the set of **50** for the **Technician (Civil and Electrical) II** written interview at the **Tanzania Revenue Authority (TRA)**.

SECTION C: ELECTRICAL ENGINEERING (Continued, Questions 31-50)

31. What is the frequency of AC power supply in Tanzania?

- A) 50 Hz
 - B) 60 Hz
 - C) 100 Hz
 - D) 400 Hz
- Answer:** A) 50 Hz

32. Which material is commonly used as a conductor in electrical cables?

- A) Aluminum
- B) Copper
- C) Silver

D) Iron

Answer: B) Copper

33. The primary function of a rectifier is to:

A) Convert AC to DC

B) Convert DC to AC

C) Store electrical energy

D) Step up voltage

Answer: A) Convert AC to DC

34. The unit of electric charge is:

A) Volt

B) Coulomb

C) Ohm

D) Joule

Answer: B) Coulomb

35. In a three-phase motor, the number of windings required is:

A) 1

B) 2

C) 3

D) 6

Answer: C) 3

36. A transformer works on the principle of:

A) Ohm's Law

B) Electromagnetic Induction

C) Kirchhoff's Law

D) Newton's Law

Answer: B) Electromagnetic Induction

37. Which of the following is an example of a passive electrical component?

A) Resistor

B) Transistor

C) Diode

D) Battery

Answer: A) Resistor

38. A short circuit occurs when:

- A) A circuit is incomplete
 - B) A high resistance path is present
 - C) Current flows through a low resistance path unexpectedly
 - D) A fuse is blown
- Answer:** C) Current flows through a low resistance path unexpectedly

39. What is the main advantage of LED lighting?

- A) High power consumption
 - B) Low efficiency
 - C) Long lifespan
 - D) High heat generation
- Answer:** C) Long lifespan

40. What is the function of a relay in an electrical circuit?

- A) To increase voltage
 - B) To protect against overcurrent
 - C) To switch circuits on and off
 - D) To store electrical energy
- Answer:** C) To switch circuits on and off

41. In a star connection, the neutral point is:

- A) Floating
 - B) Grounded
 - C) Disconnected
 - D) Positive
- Answer:** B) Grounded

42. Which type of motor is commonly used in household fans?

- A) Induction motor
 - B) Stepper motor
 - C) DC motor
 - D) Servo motor
- Answer:** A) Induction motor

43. The primary function of an alternator is to:

- A) Convert DC to AC
 - B) Convert mechanical energy to electrical energy
 - C) Store electrical energy
 - D) Step up voltage
- Answer:** B) Convert mechanical energy to electrical energy

44. Which of the following is NOT a renewable energy source?

- A) Solar
- B) Wind
- C) Coal
- D) Hydro

Answer: C) Coal

45. A power surge is caused by:

- A) A sudden drop in voltage
- B) A sudden increase in voltage
- C) A short circuit
- D) High resistance

Answer: B) A sudden increase in voltage

46. The device used to measure electrical energy consumption is called:

- A) Voltmeter
- B) Ammeter
- C) Wattmeter
- D) Energy meter

Answer: D) Energy meter

47. Which of the following materials is commonly used for insulation in high-voltage applications?

- A) Copper
- B) Aluminum
- C) Glass
- D) Silver

Answer: C) Glass

48. The purpose of an electrical earthing system is to:

- A) Increase current flow
- B) Protect against voltage surges
- C) Improve power factor
- D) Prevent electrical shock

Answer: D) Prevent electrical shock

49. The efficiency of a solar panel is highest when:

- A) It is placed in a shaded area
- B) It receives direct sunlight
- C) It is placed at an angle of 90°

D) It is installed indoors

Answer: B) It receives direct sunlight

50. The resistance of a wire depends on:

A) Material, length, and cross-sectional area

B) Voltage and current

C) Power and frequency

D) Only the type of material

Answer: A) Material, length, and cross-sectional area

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