



SREE CHITRA TIRUNAL INSTITUTE FOR MEDICAL SCIENCES & TECHNOLOGY

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ROLL NUMBER

**WRITTEN TEST FOR THE POST OF TECHNICAL ASSISTANT
(ELECTRICAL) TO JUNIOR ENGINEER (ELECTRICAL)-A**

DATE: 26/12/2022

TIME: 1 Hr.

DURATION: 60 MINUTES

Total Marks: 50

INSTRUCTIONS TO THE CANDIDATES

1. Write your Roll Number on the top of the Question Booklet and in the answer sheet.
2. Each question carries 1 mark.
3. There will not be any Negative Marking.
4. Write legibly the alphabet of the most appropriate answer (A, B, C or D) in the separate answer sheet provided.
5. Over-writing is not permitted.
6. Candidate should sign in the question paper and answer sheet.
7. No clarifications will be given.
8. Candidate should hand over the answer sheet to the invigilator before leaving the examination hall.

Signature of the Candidate

Promotion to the post of Junior Engineer (Electrical) – December 2022

1. If reactive power (kVAR) drawn by a particular load is zero, it means the load is operating at:
 - a. lagging power factor
 - b. leading power factor
 - c. Unity power factor
 - d. 0.8 power factor
2. Moisture in transformer oil cannot:
 - a. Lower the dielectric strength
 - b. Generate bubbles
 - c. Trigger Partial Discharge
 - d. Affect Current carrying capacity of winding
3. Which one of the following is a 'condition monitoring and analysis based' maintenance?
 - a. Breakdown maintenance
 - b. Predictive maintenance
 - c. Preventive maintenance
 - d. Routine maintenance
4. How much is the distance between two electrodes in a Breakdown Voltage (BDV) kit?
 - a. 5 mm
 - b. 2.5mm
 - c. 3mm
 - d. 2.5cm
5. Which one of the following is a principal fault which does not occur inside a power transformer?
 - a. Insulation breakdown between winding and earth
 - b. Insulation breakdown in between different phases
 - c. Transformer core fault
 - d. Pole insulation failure
6. On-load tap changer unit does NOT include:
 - a. Diverter switch
 - b. Selector
 - c. Oil surge relay
 - d. Buchholz relay
7. Which of the following device generally does not trip the circuit on occurrence of fault?
 - a. Ring Main Unit (RMU)
 - b. Air circuit breaker
 - c. Motorized load break switch
 - d. Vacuum circuit breaker
8. Megger is used for measuring the:
 - a. Contact resistance
 - b. Insulation Resistance
 - c. Winding resistance
 - d. Winding resistance and Insulation resistance

Durga Sreedhar
26/12/2022

9. Water is used to extinguish fire of
 - a. Class A: Wood, paper, cloth, trash, plastics - solids that are not metals
 - b. Class B: Flammable liquids-gasoline, oil, grease, acetone (Includes flammable gases)
 - c. Class C: Flammable, Live Electrical Equipment- LPG, Natural Gas, Methane, etc.
 - d. Class D: Metals-potassium, sodium, aluminium, magnesium
10. Combination pliers are provided with insulation layer
 - a. to identify the manufacture's name
 - b. to identify the quality of insulation grade
 - c. to avoid shock
 - d. to make the grip strong
11. The forced flow or movement of the electrons is described as the electrical _____.
 - a. Impedance
 - b. Voltage
 - c. Wattage
 - d. current
12. On-load tap changer (OLTC) is provided in power transformers on:
 - a. Primary side
 - b. Secondary side
 - c. High Voltage (HV) side
 - d. Low voltage (LV) side
13. Increasing the number of turns of wire on the secondary of a transformer will:
 - a. Decrease the secondary current
 - b. Increase the secondary current
 - c. Have no effect on the secondary current
 - d. Increase the primary current
14. An instrument which detects electric current is known as:
 - a. Voltmeter
 - b. Rheostat
 - c. Wattmeter
 - d. Galvanometer
15. The secondary of a current transformer must never be _____ while energized.
 - a. Grounded
 - b. Opened
 - c. Shortened and grounded
 - d. Shortened
16. A magnetic release of a circuit breaker provides protection against:
 - a. Temperature.
 - b. Over voltage
 - c. Short circuit.
 - d. Overload
17. The full load voltage drop limit in cable sizing for electrical feeders shall be:
 - a. 1%
 - b. 3%
 - c. 7.5%
 - d. 10%

Rupa Sreedhar
26/12/2022

18. A pump induction motor is directly switched on to a supply 30% lower than its rated voltage. The pump is on very light load and runs. What will eventually happen? It will
- run immediately at full load without damage as it was able to start
 - Continue to run at lower speed without damage
 - Run at the above rated speed
 - Get heated and subsequently get damaged and stop
19. In a parallel circuit operating with a source of 30 V AC, designed to carry a total current of 6 A, what happens to the protection device (fuse) when the effective resistance suddenly changes to 5.56Ω ?
- It closes
 - There is no change
 - It shorts to ground
 - It opens
20. Triac is usually operated at:
- All frequencies
 - High frequency only
 - Power frequency
 - Very Low frequency
21. The type of maintenance carried out in the event of breakdown due to malfunctioning of equipment or failure of equipment is termed as:
- Preventive maintenance
 - Predictive maintenance
 - Breakdown maintenance
 - Routine maintenance
22. A motor which works on both AC and DC is?
- shaded pole motor
 - DC shunt motor
 - commutated series-wound motor
 - Permanent Magnet Synchronous Motor
23. A current of 16 amperes divides between two branches in parallel of resistances 4 ohms and 6 ohms. The current in the 4 ohms and 6 ohms branches are:
- 6.4 A, 6.9 A respectively
 - 9.6A, 6.4A respectively
 - 6.4 A, 9.6 A respectively
 - 4.6 A, 9.6 A respectively
24. Recommended distance between plate electrodes of earthing as per inspectorate standards is?
- 1meter
 - 16 meters
 - 8meters
 - 12meters
25. A capacitor in a circuit became hot and ultimately exploded due to wrong connections. Which type of capacitor it could be:
- Electrolytic capacitor
 - Paper capacitor

Deepa Bredhar
26/12/2022

- c. Ceramic capacitor
 - d. Metallized Polypropylene capacitor
26. Typical opening time of an ACB (Air Circuit Breaker) is approximately
- a. 1.5 Seconds
 - b. 1 Second
 - c. 40 Milli seconds
 - d. 500 Milli seconds
27. In a D.C machine the number of commutator segments is equal to
- a. number of conductors
 - b. twice the number of poles
 - c. number of coils
 - d. twice the number of coils
28. The purpose of providing dummy coils in generator is to---
- a. Reduce flux density
 - b. Enhance flux density
 - c. amplify voltage
 - d. provide mechanical balance for rotor
29. If the supply frequency to the transformer is increased, the iron loss will
- a. Not change
 - b. Decrease
 - c. Increase
 - d. Decrease exponentially
30. Solder is an alloy of:
- a. Copper and zinc
 - b. Aluminium and zinc
 - c. Tin and lead
 - d. Copper and silver
31. Load factor of a power station is given by:
- a. Average load/Maximum demand
 - b. Maximum demand/Average load
 - c. Average load/Minimum load
 - d. Minimum load/average load
32. In an amplifier, negative feedback:
- a. Reduces gain
 - b. Increases gain
 - c. Increase noise
 - d. Has no effect on the gain and noise
33. Ohm's law is not applicable to
- a. High current circuits
 - b. High voltage circuits
 - c. Low resistance circuits
 - d. Semiconductors
34. Crawling of a 3-phase induction motor is due to
- a. 5th order harmonic
 - b. 3rd order harmonic
 - c. 7th order harmonic
 - d. 2nd order harmonic

Supa Sreedhar
26/12/2022

35. Thermistors like PT100 possess
- Positive temperature coefficient
 - Negative temperature coefficient
 - Linear temperature characteristic
 - High resistance at very high temperature
36. The LEDs made with GaAs (Gallium arsenide) emit light in the
- Yellow region
 - Infrared region
 - Orange region
 - Blue region
37. Transformers in transformer based Switched Mode Power Supply (SMPS) are of smaller size
- Due to high frequency operation
 - Since it operates on duty cycles
 - Since it draws lesser power
 - Since it has low operating frequency
38. The total load of a lighting sub circuit shall be and maximum number of points shall be restricted to...
- 800 watts, 8 points
 - 750 watts, 8 points
 - 800 watts, 10 points
 - 750 watts, 10 points
39. Full form of PLC is
- Programmable logic controller
 - Programming learning and computing
 - Power line communication
 - Primary logic circuit
40. A circuit has an impedance of 22 ohm, and it draws a current of 10 amperes at 0.8 power factor lagging. Which one of the following will be the apparent power?
- 2.2 kVA
 - 22 kVA
 - 220 kVA
 - 1.76 kVA
41. The rating required for a DG set with 500 kW connected load and with diversity factor of 1.5, 80% loading and 0.8 power factor is _____
- 1200 kVA
 - 600 kVA
 - 750 kVA
 - 500 kVA
42. What is the approximate percentage of acid and water present in the electrolyte of a lead-acid battery in a fully charged condition?
- 35% acid and 65% water
 - 20% acid and 80% water
 - 50% acid and 50% water
 - 25% acid and 75% water

Deepa Sreedhar
26/12/2022

43. Which of the following heating methods has maximum power factor?
- Arc heating
 - Dielectric heating
 - Induction heating
 - Resistance heating
44. On which principle does the earth resistance tester work?
- Self-induction
 - Mutual induction
 - fall of potential method
 - Fleming's left-hand rule
45. Construction of a BLDC motor is very similar to that of
- Conventional DC motor with permanent magnet
 - Induction motor
 - Permanent Magnet synchronous motor
 - Shaded pole motor
46. The unit of luminous flux is:
- Candela
 - Lumen
 - Weber
 - Lux
47. The function of closing coil in Air Circuit Breaker (ACB) is to
- close the mechanism in response to an externally applied voltage signal
 - open the mechanism in response to a fault
 - close the mechanism in response to a closing command
 - open the mechanism in response to an externally applied voltage signal
48. Inductance in series are mathematically treated as -----
- Product of individual inductance
 - Reciprocal of inductance
 - Inverse of inductance
 - Sum of individual inductance
49. Which of the following is applicable for both linear and non-linear circuits?
- Superposition theorem
 - Thevenin's theorem
 - Norton's theorem
 - Kirchhoff's Current Law
50. Power factor is not improved by the use of
- Phase advancer
 - Synchronous compensators or phase modifiers
 - Static capacitors
 - Isolation transformers

Purva Sreedhar
26/12/2022

Junior Engineer (Electrical)

Max. marks : 50

Answer Key			
1	C	26	C
2	D	27	C
3	B	28	D
4	B	29	C
5	D	30	C
6	D	31	A
7	C	32	A
8	B	33	D
9	A	34	C
10	C	35	A
11	D	36	B
12	C	37	A
13	A	38	C
14	D	39	A
15	B	40	A
16	C	41	B
17	B	42	A
18	D	43	D
19	B	44	C
20	C	45	C
21	C	46	B
22	C	47	A
23	B	48	D
24	C	49	D
25	A	50	D

Luna Seedhar
26/12/2022