SREE CHITRA TIRUNAL INSTITUTE FOR MEDICAL SCIENCES & TECHNOLOGY
THIRUVANANTHAPURAM—695 011, INDIA.
(An Institute of National Importance under Govt.of India)
Phone—(91)0471—2443152 Fax—(91)0471—2446433, 2550728
Email-sct@sctimst.ac.in Web site—www.sctimst.ac.in

ROLL NUMBER

WRITTEN TEST FOR THE POST OF JR. TECH.ASST (ELECTRICAL) – A TO TECH.ASST (ELECTRICAL) -A

DATE: 25/09/2024 TIME: 09.30 To 10.30 am

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 **OMR** sheet.
2. Each question carries **one (1)** mark.
3. There will be no Negative Marking.
4. Each question carries **4** options i.e., **A, B, C & D**. Darken completely, the bubble corresponding to the most appropriate answer using **blue or black ball point pen.**
5. Marking more than one option will invalidate the answer.
6. Candidate should sign in the **question paper** and **OMR** sheet.
7. No clarifications will be given.
8. Candidate should hand over the **OMR** sheet and **question paper** to the invigilator before leaving the examination hall.

Signature of the Candidate

MS 25/9/24.

Junior Technical Assistant (Electrical) MFCP 2024

1. In a series circuit with unequal resistances
   A. the lowest resistance has the highest current
   B. the highest resistance has the highest voltage drop
   C. the highest resistance has the most of the current through it
   D. the lowest resistance has the highest voltage drop

2. If a wire conductor of 0.2 ohm resistance is doubled in length, its resistance becomes

   A. 0.4 ohm
   B. 0.6 ohm
   C. 0.8 ohm
   D. 1.0 Ohm

3. The following is most effective in reducing the magnitude of the current, whether circuit is AC. or DC,
   A. Inductor
   B. Capacitor
   C. Resistor
   D. Reactor

4. Nichrome wire is an alloy of
   A. Lead and zinc
   B. Chromium and vanadium
   C. Nickel and chromium
   D. Copper and silver

5. Kirchhoff s law is applicable to
   A. Passive networks only
   B. AC. circuits only
   C. DC circuits only
   D. both AC as well DC. Circuits

6. The power consumed in a circuit element will be least when the phase difference between the current and voltage is
   A. 90°
   B. 180°
   C. 60°
   D. 0°

7. Form Factor is the ratio of
   A. RMS value/average value
   B. Average value/ RMS.value
   C. Average value/peak value
   D. RMS. value/peak value .

8. For a frequency of 200 Hz, the time period will be
   A. 0.5 s
   B. 0.05s
   C. 0.005 s
   D. 0.0005 s

9. Ina pure resistive circuit
   A. Current lags behind the voltage by 90°
   B. Current leads the voltage by 90°
   C. Current can lead or lag the voltage by 90°
   D. Current is in phase with the voltage

10. The power factor of an induction motor under no-load conditions will be closer to

A. Unity
B. 0.2 leading
C. 0.5 leading
D. 0.2 lagging

11. The material for commutator brushes is generally

A. Carbon
B. Mica
C. Copper
D. Cast iron

12. A direct on-line starter is used: for starting motors

A. up to 15 H.P.
B. up to 10 H.P.
C. up to 5 H.P.
D. up to 20 H.P.

13. The efficiency of a transformer will be maximum when

A. copper losses = iron losses
B. copper losses = hysteresis losses
C. hysteresis losses = eddy current losses
D. eddy current losses = copper losses

14. The function of conservator in a transformer is TO:

A. cool the transformer oil
B. reduce copper as well as core losses
C. take care of the expansion and contraction of transformer oil
D. protect against internal fault

15. The chemical used in breather is

A. silica gel
B. asbestos fibre
C. silica sand
D. sodium chloride

16. "In any linear bilateral network, if a source of EMF E in any branch produces a current I in any other branch, then same EMF acting in the second branch would produce the same current / in the first branch". The above statement is associated with

A. Reciprocity theorem
B. Superposition theorem
C. Compensation theorem
D. Thevenin Theorem

17. A Buchholz relay can be installed on

A. air-cooled transformers
B. welding transformers
C. oil cooled transformers
D. auto-transformers

18. For power factor correction, synchronous motors operate at

A. no-load and greatly over-excited fields
B. no-load and under-excited fields
C. normal load with minimum excitation
D. normal load with zero excitation

19. Which of the following is not a constituent for making porcelain insulators ?

A. Silica
B. Kaolin
C. Felspar
D. Quartz

20. In a tap changing transformer, the tappings are provided on

A. secondary winding
B. primary winding
C. high voltage winding
D. any of the above

21. With three resistances connected in parallel, if each dissipates 20 W the total power supplied by the voltage source equals

A. 10 W
B. 20 W
C. 40 W
D. 60W

22. Which of the following is the unit of electrical capacitance?

A. Farad
B. Coulomb
C. Volt
D. Ohm

23. In a series R-L-C circuit, resonance occurs when the:

A. Resistance is zero
B. Inductive reactance is zero
C. Capacitive reactance is zero
D. Inductive reactance equals capacitive reactance

24. Which type of transformer is used to measure high voltage?

A. Power transformer
B. Auto transformer
C. Instrument transformer
D. Isolation transformer

25. The speed of a DC motor is:

A. Directly proportional to armature voltage
B. Inversely proportional to field current
C. Both a and b
D. Neither a nor b

26. Which of the following devices converts AC to DC?

A. Rectifier
B. Transformer
C. Transducer
D. Inverter

27. The electrical power factor of a purely resistive circuit is:
A. 0
B. 0.5
C. 1
D. -1

28. Which of the following is used to store electrical energy?
A. Resistor
B. Inductor
C. Capacitor
D. Transformer

29. Which of the following material is used for making the core of transformers?
A. Copper
B. Aluminium
C. Zinc
D. Silicon steel

30. A dynamometer type instrument can be used for:
A. AC measurement only
B. DC measurement only
C. Both AC and DC measurement
D. None of the above

31. What is the main purpose of a fuse in an electrical circuit?
A. To open the circuit
B. To protect the circuit from overload and short circuit
C. To reduce the power factor
D. To increase voltage

32. In a three-phase system, the voltage between two phases is called:
A. Line voltage
B. Phase voltage
C. RMS voltage
D. Peak voltage

33. Which motor is commonly used in domestic fans?
A. Synchronous motor
B. Induction motor
C. Universal motor
D. Stepper motor

34. Which law states that the total current entering a junction is equal to the total current leaving the junction?

A. Kirchhoff's Current Law (KCL)
B. Kirchhoff's Voltage Law (KVL)
C. Ohm's Law
D. Coulomb's Law

35. Use of high voltage in long-distance power transmission is:
A. To reduce power loss
B. To reduce the size of conductors
C. To improve power factor
D. To increase the load capacity

36. The function of an inductor in an AC circuit is to:
A. Resist the flow of current
B. Store energy in the form of an electric field
C. Store energy in the form of a magnetic field
D. Convert AC to DC

37. Which of the following meters is used to measure electric energy consumption in homes?
A. Voltmeter
B. Ammeter
C. Wattmeter
D. Energy meter

38. In a synchronous generator, if the field current is increased while keeping the mechanical input constant, what happens to the terminal voltage and power factor?
A. Voltage decreases and power factor becomes lagging
B. Voltage increases and power factor becomes leading
C. Voltage increases and power factor remains the same
D. Voltage decreases and power factor becomes leading

39. Which of the following motors is used for precise positioning applications?
A. Synchronous motor
B. Induction motor
C. Stepper motor
D. Universal motor

40. The unit of electrical energy is:
A. Joule
B. Watt
C. Kilowatt-hour
D. Volt-ampere

41. Which material is commonly used as the filament in incandescent light bulbs?
A. Copper
B. Aluminium
C. Tungsten
D. Carbon

42. The primary function of a diode is to:
A. Act as a resistor
B. Amplify signals
C. Conduct linearly in one direction
D. Control power factor

43. The main advantage of a synchronous motor over an induction motor is that it can:
A. Start without an external device
B. Run at synchronous speed
C. Operate without any losses
D. Self-regulate the load current

44. In a purely inductive circuit, the current:
A. Leads the voltage by 90°
B. Lags the voltage by 90°
C. Is in phase with the voltage
D. Leads the voltage by 180°

Name of category: Jr Technical Assistant Electrical

ANSWER KEY

1	b	21	d	41	c
2	a	22	a	42	c
3	c	23	d	43	b
4	c	24	c	44	b
5	d	25	c		
6	a	26	a		
7	a	27	c		
8	c	28	c		
9	d	29	d		
10	d	30	c		
11	a	31	b		
12	c	32	a		
13	a	33	b		
14	c	34	a		
15	a	35	a		
16	a	36	c		
17	c	37	d		
18	a	38	b		
19	a	39	c		
20	c	40	c		

21/4/24.