राष्ट्रीय प्रौद्योगिकी संस्थान वरंगल
वरंगल – 506004, तेलंगाना, भारत
NATIONAL INSTITUTE OF TECHNOLOGY WARANGAL
WARANGAL – 506004, Telangana, INDIA

QUESTION BOOKLET – ADVANCED TEST FOR RECRUITMENT TO TECHNICAL CADRE POSTS

Post:	Technician
Department	Electrical Engineering
Advt.:	01/2026 dated 09.01.2026
Date of Exam:	17-08-2026
Duration:	2 Hours
Total Marks:	200 (100 Q X 2 M each)
No. of Questions:	100 (MCQs)
Negative Marking:	1/4th mark for every wrong answer

INSTRUCTIONS TO THE CANDIDATES

1. This is an Advanced Test comprising 100 Multiple Choice Questions (MCQs), to be conducted in MCQ mode only.
2. The duration of the test is 2 hours.
3. Answers must be marked on the OMR Answer Sheet using a blue or black ballpoint pen only. Use of pencils is not permitted.
4. Candidates must write/mark their Roll Number, Post applied for, and other required details in the designated space on the OMR Answer Sheet.
5. Answers marked on the Question Booklet or on any sheet other than the OMR Answer Sheet will not be evaluated.
6. For each question, darken the circle corresponding to the correct answer completely and clearly on the OMR Answer Sheet.
7. Each question carries equal marks. There will be a negative marking of ¼ th mark for every wrong answer. No marks will be deducted for questions not attempted.
8. Mark only one answer for each question. Marking more than one circle for a question will be treated as a wrong answer.
9. Overwriting, cutting, or erasing that leaves the OMR Answer Sheet unclear may result in the answer not being evaluated.
10. No candidate shall leave the examination hall during the test.
11. Any attempt to copy, use unfair means, or communicate with others will result in immediate disqualification.
12. The use of electronic gadgets, calculators, mobile phones, smart watches, or any written/printed material is strictly prohibited.
13. Rough work, if any, should be done only on the separate sheet provided for the purpose.
14. Ensure that the OMR Answer Sheet is duly filled and handed over to the Invigilator before leaving the examination hall.
15. Failure to submit the OMR Answer Sheet will result in cancellation of candidature.
16. All material provided, including rough sheets, must be returned before leaving the examination hall.

1. Which of the following are the components of resistive type circuit?
   (a) Resistor
   (b) Ideal Current source
   (c) Ideal Voltage source
   (d) All the above

2. In which of the following type of components does electrical resonator generates energy loss?
   (a) Resistive
   (b) Capacitive
   (c) Inductive
   (d) All the above

3. Inductance is measured in terms of?
   (a) Hertz
   (b) Farads
   (c) Ohm
   (d) Henry

4. A good resistor has _____ power rating.
   (a) Low
   (b) High
   (c) Zero
   (d) Equal

5. Which of the following component stores charge?
   (a) Resistor
   (b) Inductor
   (c) Capacitor
   (d) All the above

6. Which among the following is a unit for electrical energy?
   (a) Watt
   (b) Kilowatt-hour
   (c) Ohm
   (d) Coloumb

7. Full form of HRC fuse is _____.
   (a) High Rupture Capacity
   (b) Hybrid Rupture Capacity
   (c) High Rapid Capacity
   (d) Hybrid Rapid Capacity

8. What does a fuse control?
   (a) Over heat
   (b) Fluctuation
   (c) Over current
   (d) All the above

9. The protective device for earth leakage is _____.
   (a) MCCB
   (b) ACB
   (c) ELCB
   (d) Fuse

10. ACB stands for _____.
    (a) Air Circuit Breaker
    (b) Automatic Control Breaker
    (c) Advanced Control Board
    (d) Alternating Circuit Board

11. MCCB is used where current rating is _____.
(a) < 100 A (b) 100-1600 A
(c) < 10 A (d) < 50 A

12. The voltage range of single-phase energy meter is _____.
(a) 110 V – 640 V (b) 110 V – 440 V
(c) 110 V – 240 V (d) 110 V – 540 V

13. Which one of the following electricity meters used in single phase AC power systems?
(a) Induction Energy Meter (b) Commutator meter
(c) Mercury meter (d) DC watt hour meter

14. In induction-type wattmeters,
(a) Voltage coil is the moving coil (b) Current coil is the moving coil
(c) Both are moving (d) None are moving

15. Resistivity of a wire depends on _____.
(a) length of wire (b) cross sectional area
(c) material (d) All the above

16. Kirchhoff's current law (KCL) is based on the conservation of:
(a) Energy (b) Charge
(c) Momentum (d) Mass

17. Kirchhoff's voltage law (KVL) is based on the conservation of:
(a) Energy (b) Charge
(c) Momentum (d) Mass

18. Ohm's law is not applicable to _____.
(a) dc circuits (b) high currents
(c) small resistors (d) semi-conductors

19. In a circuit with more number of loops, which law can be best suited for the analysis?
(a) KCL (b) KVL
(c) Ohm's law (d) None

20. In a _____ circuit, the total resistance is greater than the largest resistance in the circuit.
(a) Series (b) Parallel
(c) Either series or parallel (d) Neither series nor parallel

21. Every _____ is a _____ but every _____ is not a _____.
(a) mesh, loop, loop, mesh
(b) loop, mesh, mesh, loop
(c) loop, mesh, loop, mesh
(d) mesh, loop, mesh, loop

22. The resistance of a perfect conductor is _____.
(a) Zero
(b) Infinite
(c) 1 ohm
(d) Depends on dimensions

23. The wire's resistance is R. If its length is doubled and area halved, new resistance will be:
(a) R/2
(b) R
(c) 2R
(d) 4R

24. Inductance of an inductor is inversely proportional to its _____.
(a) Number of turns
(b) Area of cross section
(c) Length
(d) Absolute permeability

25. A Wheatstone bridge can be used to determine _____.
(a) Current
(b) Voltage
(c) Power
(d) Resistance

26. 3-point starter is used to start the _____.
(a) Shunt motor
(b) Compound motor
(c) a & b
(d) Series motor

27. Which type of protection is NOT provided by a 4-point starter?
(a) Overload protection
(b) Under-voltage protection
(c) High-speed protection
(d) Low-voltage protection

28. What happens when a DOL starter is activated?
(a) Motor starts with reduced torque
(b) Motor starts immediately at full voltage
(c) Motor runs in a reverse direction
(d) Motor is disconnected temporarily

29. In DOL, fuses are provided to protect against _____.
(a) Short circuit protection
(b) Over voltage protection
(c) Over current protection
(d) Under voltage protection

30. The cheapest starter for induction motor is _____.
(a) Rotor resistance starter
(b) Stator resistance starter
(c) Autotransformer starter
(d) Star-delta starter

31. What is the working principle of DC motor?
(a) Fleming's right hand rule (b) Fleming's left hand rule
(c) Maxwell's second law (d) Maxwell's third law

32. In a DC motor, the function of a commutator is to:
(a) Convert AC to DC (b) Convert DC to AC
(c) Provide mechanical support (d) Reverse the direction of current

33. Which type of motor is commonly used in ceiling fans?
(a) Universal motor (b) Capacitor start motor
(c) Induction motor (d) Stepper motor

34. The speed of a 4-pole, 50 Hz induction motor is close to:
(a) 1000 rpm (b) 1500 rpm
(c) 2000 rpm (d) 1250 rpm

35. Synchronous generators are also known as:
(a) Induction generators (b) Alternators
(c) Transformers (d) Motors

36. In alternators, the rotating part is _____.
(a) Stator (b) Armature winding
(c) Field winding (d) Brush

37. In a single-phase induction motor, starting torque is provided by:
(a) Main winding (b) Rotor resistance
(c) Auxiliary winding (d) Brushes

38. What determines the speed of a DC motor?
(a) Number of poles (b) Applied voltage
(c) Armature resistance (d) Back EMF

39. A stepper motor is used where:
(a) Variable speed is needed (b) Low torque is required
(c) Precise position control is needed (d) High speed is required

40. D.C. shunt motors are used for driving
(a) trains (b) cranes
(c) hoists (d) machine tools

41. Transformer works on the principle of _____.
(a) self-induction (b) mutual induction
(c) ampere's law (d) coulomb's law

42. Which of the following does not change in a transformer?
(a) current (b) voltage
(c) frequency (d) all the above

43. Sumpner's back-to-back test is conducted on transformers to determine _____.
(a) temperature (b) power losses
(c) stray losses (d) copper losses

44. Which side is short circuited during short-circuit test on a transformer.
(a) Primary side (b) Secondary side
(c) Low voltage side (d) High voltage side

45. Open circuit test of transformer gives _____.
(a) Hysteresis loss (b) Eddy current loss
(c) a & b (d) Copper loss

46. The essential condition for parallel operation of two transformers is that they have same:
(a) Polarity (b) Phase sequence
(c) Voltage ratio (d) Percentage impedance

47. Material used for construction of transformer core is _____.
(a) wood (b) copper
(c) aluminium (d) silicon steel

48. Electrical installations must comply with the _____.
(a) NFPA 10 (b) NFPA 40
(c) NFPA 70 (d) NFPA 100

49. An example for an application involving a closed loop control system is:
(a) Manual light switch (b) Calling bell
(c) Vehicle horn (d) Speed control of DC motor

50. In the four-quadrant operation, which quadrants correspond to the motoring mode?
(a) Quadrant I and II (b) Quadrant II and III
(c) Quadrant I and III (d) Quadrant IV and II

51. Small DC motors have best speed control by _____.
(a) armature voltage control
(b) field resistance control
(c) any of the methods
(d) None

52. Transformers with high leakage impedance is used in _____.
(a) arc welding
(b) power distribution
(c) power generating terminals
(d) None

53. A transformer has a 120 V primary and 20 V secondary rated at 4 A. The measured winding resistances are 0.3 Ω and 5 Ω for secondary and primary respectively. The total copper loss is:
(a) 7 W
(b) 19 W
(c) 32 W
(d) 44 W

54. A step-up transformer increases _____.
(a) Power
(b) Current
(c) Voltage
(d) Energy

55. Transformer oil is used in transformer for _____.
(a) Cooling
(b) Lubrication
(c) Insulation
(d) Insulation and Cooling both

56. Why are transformer cores made up of laminated sheets?
(a) Reduce copper loss
(b) Reduce core loss
(c) Reduce the frequency
(d) None

57. The efficiency of two identical transformers under load conditions can be determined by
(a) Short-circuit test
(b) Open-circuit test
(c) Back-to-back test
(d) None

58. Which type of distribution is preferred in residential areas?
(a) Single phase, two wire
(b) Three phase, four wire
(c) Three phase, three wire
(d) Two phase, four wire

59. The generating voltage and frequency in India is _____.
(a) 11 kV and 60 Hz
(b) 11 kV and 50 Hz
(c) 220 kV and 60 Hz
(d) 220 kV and 50 Hz

60. Which of the following are connected by the service mains?
(a) Transformer and earth
(b) Distributor and relay system
(c) Distributor and consumer terminals
(d) Distributor and transformer

61. What does SPST stand for in electrical switches?
(a) Single Pole Single Throw
(b) Single Pole Single Toggle
(c) Single Phase Single Throw
(d) Single Point Single Toggle

62. How many terminals does a DPST switch have?
(a) 2
(b) 4
(c) 6
(d) 8

63. MCB stands for _____.
(a) Main Circuit Breaker
(b) Miniature Circuit Breaker
(c) Multi Current Breaker
(d) Mini Current Breaker

64. Which type of MCB is used for heavy inductive loads like motors and transformers?
(a) Type-A
(b) Type-B
(c) Type-C
(d) Type-D

65. Earthing is used for the protection of human and devices from _____.
(a) Normal current
(b) Leakage current
(c) Over current
(d) None

66. The device used for measurement of earth resistance.
(a) Voltmeter
(b) Ammeter
(c) Megger
(d) Multimeter

67. How many watts are considered for a 5 A socket?
(a) 500 W
(b) 1000 W
(c) 1500 W
(d) 2000 W

68. How many watts are considered for a 15 A socket?
(a) 500 W
(b) 1000 W
(c) 1500 W
(d) 2000 W

69. The power factor at resonance in a series RLC circuit is _____.
(a) Zero
(b) 0.8 leading
(c) 1
(d) 0.8 lagging

70. Average value of a sinusoidal alternating signal is _____ for a full cycle.
(a) Zero
(b) Maximum
(c) 1
(d) Infinite

71. A 3-phase voltage of 220 V is applied to a balanced, delta-connected, 3-phase, purely resistive load. Calculate the ratio of the reactive power to the active power.
(a) Zero (b) 0.5
(c) 1 (d) 1.5

72. Which of the following statements is true for a balanced three-phase delta connection?
(a) $V_L=\sqrt{3}\ V_{ph}$ (b) $I_L=\sqrt{3}\ I_{ph}$
(c) $V_L=0$ (d) $V_{ph}=0$

73. For a star connected three phase AC circuit, _____.
(a) $V_L=\sqrt{3}\ V_{ph}$ (b) $I_L=\sqrt{3}\ I_{ph}$
(c) $V_L=0$ (d) $V_{ph}=0$

74. In an AC circuit, the power factor is defined as the ratio of _____.
(a) Reactive power to apparent power (b) Real power to apparent power
(c) Apparent power to real power (d) Real power to reactive power

75. Which of the following device is connected in parallel to a load for pf improvement?
(a) Static capacitor (b) Induction coil
(c) Transformer (d) Synchronous generator

76. A leading power factor is caused by which type of load?
(a) Inductive (b) Capacitive
(c) Resistive (d) Both inductive and capacitive

77. A diode is _____.
(a) three terminal semiconductor device (b) four terminal semiconductor device
(c) two terminal semiconductor device (d) three terminal analog device

78. In case of an ideal power diode, the leakage current flows from _____.
(a) anode to cathode (b) cathode to anode
(c) in both the directions (d) leakage current does not flow

79. Which of the following devices does not belong to the transistor family?
(a) IGBT (b) MOSFET
(c) BJT (d) GTO

80. MOSFET is a _____.
(a) uncontrolled device (b) voltage controlled device
(c) current controlled device (d) temperature controlled device

81. The three terminals of the IGBT are _____.
(a) base, emitter & collector
(b) gate, source & drain
(c) gate, emitter & collector
(d) base, source & drain

82. An SCR is a _____.
(a) four layer, four junction device
(b) four layer, three junction device
(c) three layer, three junction device
(d) three layer, four junction device

83. The latching current is _____ than the holding current.
(a) lower
(b) higher
(c) same as
(d) negative

84. The device that does not have the gate terminal is _____.
(a) TRIAC
(b) SCR
(c) DIAC
(d) FET

85. The GTO can be turned off by _____.
(a) a negative gate pulse
(b) a positive gate pulse
(c) removing the gate pulse
(d) a negative anode-cathode voltage

86. A TRIAC is equivalent to two SCRs in _____.
(a) series
(b) parallel
(c) anti-parallel
(d) anti-series

87. The thyristor is turned -off when the anode current falls below _____.
(a) forward current
(b) latching current
(c) reverse current
(d) holding current

88. A multiplier is _____.
(a) non-capacitive
(b) capacitive
(c) non-inductive
(d) inductive

89. Which of the following can be measured using Maxwell's Inductance Capacitance Bridge?
(a) capacitance
(b) inductance
(c) mutual Inductance
(d) frequency

90. The type of damping used for moving iron instruments is _____.
(a) Air friction damping
(b) Fluid friction damping
(c) Eddy current damping
(d) Gravity friction damping

91. For measurements on high voltage capacitors, the suitable bridge is _____.
(a) Schering bridge (b) Modified De Sauty's bridge
(c) Wien bridge (d) None

92. C.R.O. can be used to measure:
(a) AC voltage (b) DC voltage
(c) frequency (d) all the above

93. Which principle does a standard AC clamp meter use to measure current?
(a) Electromagnetic induction (b) Electrostatic discharge
(c) Skin effect (d) Hall effect

94. An electro-dynamometer type watt meter measures which type of power?
(a) Active power (b) Reactive power
(c) Apparent power (d) Peak power

95. Which of the following is an integrating instrument?
(a) Ammeter (b) Voltmeter
(c) Wattmeter (d) Energy meter

96. Which is the insulation material used in an electric iron?
(a) Plastic (b) Rubber
(c) Mica (d) Silica

97. The most common type of fault is _____.
(a) Phase-to-phase (b) Phase-to-neutral
(c) Single-phase-to-ground (d) Three-phase-to-ground

98. Which type of fault occurs when a live conductor comes in contact with the earth?
(a) Short-circuit fault (b) Open-circuit fault
(c) Arc fault (d) Ground fault

99. Which protection device is commonly used to detect and isolate faults in power systems?
(a) Fuse (b) Circuit breaker
(c) Surge arrester (d) Capacitor bank

100. What is the standard form of FMEA?
(a) Failure Mode and Earthing Analysis (b) Failure Mode and Effects Analysis
(c) Fault Mode and Effects Analysis (d) None

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