

GOVERNMENT OF MIZORAM
POWER & ELECTRICITY DEPARTMENT

**COMBINED COMPETITIVE EXAMINATION FOR
RECRUITMENT TO DIFFERENT TECHNICAL POSTS
(AUGUST-2026)**

PAPER-III
(WIREMAN)

Full Marks : 200
Time Allowed : 3 Hours

Signature of Invigilator _____

CODE :

(For official use)

SUBJECT	MARK CARRIED BY EACH QUESTION / TOPIC	NO. OF CORRECT ANSWERS	MARKS OBTAINED
Wireman	2		
TOTAL			

Signature of Examiner : _____

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All questions carry 2 marks.

Put a tick (✓) mark against the correct answer in the space given in each question.

If a candidate gives more than one answer to one question, it will be treated as wrong answer even if one of the given answers happens to be correct.

WIREMAN - 200 MARKS

1. Some materials have electrical conductivity much lower than most metals, but much higher than insulators, these are known as _____.
 - (a) Thermistor ()
 - (b) Semiconductor** ()
 - (c) Varistor ()
 - (d) Variable resistor ()
2. Semiconductors are formed by _____ bonds.
 - (a) Covalent** ()
 - (b) Electrovalent ()
 - (c) Co-ordinate ()
 - (d) Star-Delta ()
3. A semiconductor usually has _____ valence electrons.
 - (a) 2 ()
 - (b) 3 ()
 - (c) 4** ()
 - (d) 5 ()
4. What are the properties of a good conductor?
 - (a) Should have low melting point ()
 - (b) Should have high dielectric strength ()
 - (c) Should have low tensile strength ()
 - (d) Should have low specific resistance** ()
5. Bus-bar conductors are made of _____.
 - (a) Silver ()
 - (b) Aluminum ()
 - (c) Copper or Aluminium** ()
 - (d) Plastic ()
6. The temperature coefficient of resistance of a semiconductor is _____.
 - (a) Negative** ()
 - (b) Positive ()
 - (c) Zero ()
 - (d) One ()

7. What type of test is to be done to check whether the switches are connected to live wires or not?
- (a) Ground test ☐
 - (b) Polarity test** ☐
 - (c) Insulation resistance test ☐
 - (d) Continuity test ☐
8. What is the function of ferrules in panel boards?
- (a) To identify the panel ☐
 - (b) To identify the switch ☐
 - (c) To identify strings** ☐
 - (d) To identify the raceway ☐
9. What is the material of the conductor used in overhead line?
- (a) Aluminium** ☐
 - (b) Iron ☐
 - (c) Brass ☐
 - (d) Copper ☐
10. Why are electrical insulators important?
- (a) They provide power to an electrical circuit ☐
 - (b) They are used to protect us from electricity** ☐
 - (c) They help in conducting heat ☐
 - (d) They help in the flow of electricity ☐
11. Which mathematical relation correctly describes Ohm's law?
- (a) $V = IR$** ☐
 - (b) R/I ☐
 - (c) $R = VI$ ☐
 - (d) $I = R/V$ ☐
12. According to Ohm's law, which electrical quantity is inversely proportional to electric current:
- (a) Voltage ☐
 - (b) Resistance** ☐
 - (c) Power ☐
 - (d) Energy ☐
13. Which of the following devices protects the circuit from short circuit?
- (a) Fuse** ☐
 - (b) Indicator ☐
 - (c) Push button ☐
 - (d) None of these ☐
14. When passing through an electromagnetic field, electrons are repelled by _____.
- (a) Negative plate** ☐
 - (b) Positive plate ☐
 - (c) Neutral plate ☐
 - (d) Oxidation plate ☐

15. Which of the following quantities has no unit?
- (a) Permittivity ()
 - (b) Permeability ()
 - (c) **Magnetic susceptibility** ()
 - (d) None of these ()
16. What is determined by BH curve?
- (a) Retention of material ()
 - (b) Field intensity of the substance ()
 - (c) **Magnetic properties of the substance** ()
 - (d) Pulling force of magnetic material ()
17. What can be determined by Fleming's right hand rule?
- (a) **Direction of dynamically induced EMF** ()
 - (b) The value of the current ()
 - (c) The value of voltage ()
 - (d) None of these ()
18. What is the purpose of the corkscrew rule?
- (a) To find the direction of induced emf ()
 - (b) To find the direction of rotation of the conductor ()
 - (c) To find the direction of current flowing in a conductor ()
 - (d) **To find the direction of magnetic lines around the conductor** ()
19. Capacitor stores _____.
- (a) **energy** ()
 - (b) distance ()
 - (c) time ()
 - (d) light ()
20. At what speed does a 3 phase induction motor run?
- (a) above synchronous speed ()
 - (b) **below synchronous speed** ()
 - (c) equal to synchronous speed ()
 - (d) at slip speed ()
21. As the number of turns in the coil increases, the reactance _____.
- (a) **increases** ()
 - (b) decreases ()
 - (c) remains the same ()
 - (d) is stored in the original material ()
22. What is the inductive reactance of a coil having 20H inductance at 50 Hz supply frequency?
- (a) 6252 Ω ()
 - (b) 6273 Ω ()
 - (c) **6280 Ω** ()
 - (d) 6382 Ω ()

23. Electricity companies supply AC, why not DC?
- (a) **AC is easier to transmit** ()
 - (b) DC is more dangerous ()
 - (c) DC is not needed now ()
 - (d) None of these ()
24. Alternator is a _____ type of generator.
- (a) Direct voltage ()
 - (b) DC ()
 - (c) Both AC and DC ()
 - (d) **AC** ()
25. What is the formula to find the phase voltage in 3-phase star connection?
- (a) $V_P = V_L$ ()
 - (b) $V_P = \sqrt{3} V_L$ ()
 - (c) $V_P = 1/\sqrt{3} V_L$ ()
 - (d) **$V_P = V_L / \sqrt{3}$** ()
26. Earth resistance can be measured by _____.
- (a) Fall of Potential method ()
 - (b) Uses of earth tester ()
 - (c) Duct ohmmeter method ()
 - (d) **Both (a) and (b)** ()
27. According to IE rules, what is the distance between the floor and the distribution board in domestic wiring?
- (a) **2 meters** ()
 - (b) 2.5 meters ()
 - (c) 3 meters ()
 - (d) 3.5 meters ()
28. What is distribution system?
- (a) Generating station to transmission line ()
 - (b) Generating station to substation ()
 - (c) Generation of electricity ()
 - (d) **Supply from substation to consumer** ()
29. What is conventional electricity generation?
- (a) Biogas ()
 - (b) Solar ()
 - (c) **Thermal** ()
 - (d) Wind energy ()
30. Which fuel is used to generate heat energy in thermal power station?
- (a) **Coal** ()
 - (b) Wood ()
 - (c) Biogas ()
 - (d) Kerosene ()

31. Which machine converts electrical power into mechanical power?
- (a) Alternator ()
 - (b) DC Motor** ()
 - (c) DC Generator ()
 - (d) Transformer ()
32. Which type of transmission is adopted for AC power transmission?
- (a) Single phase two wire ()
 - (b) Two phase three wire ()
 - (c) Three phase three wire** ()
 - (d) Three phase four wire ()
33. What is the advantage of DC electric power transmission?
- (a) Only two conductors are required** ()
 - (b) No communication problem due to high voltage ()
 - (c) No need for transformer ()
 - (d) High voltage transmission ()
34. What is a distributor?
- (a) Conductor for transmission n line ()
 - (b) Conductor for distribution line ()
 - (c) Conductor providing supply to the service main** ()
 - (d) Power transformer conductor ()
35. Where are steel towers used?
- (a) Transmission lines** ()
 - (b) Primary distribution lines ()
 - (c) Secondary distribution lines ()
 - (d) Telephone lines ()
36. How is the condition of an earth electrode verified?
- (a) By measuring power ()
 - (b) By measuring resistance** ()
 - (c) By measuring voltage ()
 - (d) By measuring current ()
37. In which system are pole mounted substations used?
- (a) Primary distribution ()
 - (b) Secondary distribution** ()
 - (c) Primary transmission ()
 - (d) Secondary transmission ()
38. How many poles are used in a pole mounted outdoor substation?
- (a) Three ()
 - (b) Six ()
 - (c) Two** ()
 - (d) Eight ()

39. Which gas is used as an insulator in circuit breaker?
(a) Nitrogen ()
(b) Oxygen ()
(c) Hydrogen ()
(d) **SF₆** ()
40. What is the function of lightning arrestor?
(a) Protection against over current ()
(b) **Protection against over voltage due to lightning** ()
(c) Low current protection ()
(d) Protection against leakage current ()
41. What is a line protecting device?
(a) Bus bar ()
(b) Isolating switch ()
(c) Insulator ()
(d) **Circuit breaker** ()
42. Which type of distribution is used in residential areas?
(a) Single phase two wire ()
(b) Three phase three wire ()
(c) Two phase two wire ()
(d) **Three phase four wire** ()
43. What is the name of the device used to protect against lightning in overhead lines?
(a) Air circuit breaker ()
(b) Oil circuit breaker ()
(c) **Lightning arrestor** ()
(d) Isolator ()
44. Which circuit breaker is sufficient for extra high tension line?
(a) Air blast circuit breaker ()
(b) **SF₆ circuit breaker** ()
(c) Minimum oil circuit breaker ()
(d) Bulk oil circuit breaker ()
45. The size of earth wire depends on _____.
(a) Fault current ()
(b) Soil resistance ()
(c) **Both (a) and (b)** ()
(d) Service line capacity ()
46. The earth resistance should be designed in such a way that:
(a) **Ground resistance should be as low as possible** ()
(b) Ground resistance is as high as possible ()
(c) Ground resistance should always be zero ()
(d) None of these ()

47. The average resistance of the human body is _____.
(a) 100 ohm ()
(b) **1000 ohm** ()
(c) 1500 ohm ()
(d) 2000 ohm ()
48. What is the length of pipe electrode used for pipe earthing?
(a) not less than 1 meter ()
(b) not less than 1.5 m ()
(c) not less than 2.0 m ()
(d) **not less than 2.5 m** ()
49. Where is system earthing used?
(a) Commercial building ()
(b) Industry ()
(c) **Generating Station** ()
(d) Domestic Building ()
50. Where is plate earthing used?
(a) Commercial building ()
(b) **Substation** ()
(c) Industry ()
(d) Multi-storey buildings ()
51. What size of GI conductor is used for earthing from the main electrode to the motor?
(a) **14 SWG** ()
(b) 8 SWG ()
(c) 10 SWG ()
(d) 4 SWG ()
52. What is the permissible leakage current in any wiring installation as per IE rules?
(a) Not more than 1/50th of the full load current ()
(b) Not more than 1/500th of the full load current ()
(c) **Not more than 1/5000th of the full load current** ()
(d) Not more than 1/50000th of the full load current ()
53. The most popular motor used in a washing machine is single phase 240 volts 50 Hz _____.
(a) **Capacitor start squirrel cage motor** ()
(b) DC shunt motor ()
(c) Synchronous motor ()
(d) Shaded pole motor ()
54. In a single phase induction motor, capacitor is used for which of the following reasons?
(a) Splitting the phase to produce a rotating magnetic field ()
(b) To improve the power factor ()
(c) Drawing leading current ()
(d) **All options** ()

55. Buchholz relay is used in _____.
 (a) **Transformer** ()
 (b) DC generator ()
 (c) DC motor ()
 (d) Induction motor ()
56. Which transformer is used for measuring high value current?
 (a) **CT** ()
 (b) PT ()
 (c) Distribution transformer ()
 (d) Single phase transformer ()
57. The basic function of a transformer is to transform _____.
 (a) Power level ()
 (b) **Voltage level** ()
 (c) Power factor ()
 (d) Frequency ()
58. Which of the following machines will have maximum efficiency?
 (a) **Electric power transformer** ()
 (b) DC motor ()
 (c) Electric power generator ()
 (d) Induction motor ()
59. A transformer _____.
 (a) Converts AC to DC ()
 (b) Converts DC to AC ()
 (c) Increases or decreases the DC voltage ()
 (d) **Increases or decreases the AC voltage** ()
60. In an oil-filled transformer, transformer oil is used for:
 (a) Insulation ()
 (b) Lubrication ()
 (c) Cooling ()
 (d) **Both insulation and cooling** ()
61. Which of the following machines converts mechanical energy into AC type electrical energy?
 (a) **Alternator** ()
 (b) Rectifier ()
 (c) Drum switch ()
 (d) Synchronous motor ()
62. DC and AC generators are similar in one important aspect, ie., they both produce _____ in the armature conductors.
 (a) Direct voltage ()
 (b) **Alternating EMF** ()
 (c) DC ()
 (d) Direct EMF ()

63. What is the working principle of DC generator?
(a) Ampere's law ()
(b) **Faraday's law of electromagnetic induction** ()
(c) Faraday's law of electrolysis ()
(d) Lenz's law ()
64. Most commonly used wiring in domestic use is _____.
(a) **Conduit wiring** ()
(b) Clear wiring ()
(c) Batten wiring ()
(d) None of these ()
65. Wiring in houses is generally done in _____.
(a) **Parallel connection** ()
(b) Series connection ()
(c) Both (a) and (b) ()
(d) Mixed connection ()
66. Which type of earthing is used by transmission lines?
(a) Plate earthing ()
(b) Rod earthing ()
(c) **Strip earthing** ()
(d) All options ()
67. Which diagram shows the physical location of accessories in a wiring installation?
(a) Wiring diagram ()
(b) Schematic diagram ()
(c) Layout diagram ()
(d) **Installation plan** ()
68. Which wiring can be done either on the surface or concealed in the wall?
(a) Cleat wiring ()
(b) Batten wiring ()
(c) **PVC conduit wiring** ()
(d) PVC casing and capping wiring ()
69. What is the advantage of concealed wiring?
(a) The cost of installation is low ()
(b) It is easy to find the fault ()
(c) A semi-skilled technician can do the wiring ()
(d) **Wiring can be done through the shortest path** ()
70. What are the disadvantages of PVC casing and capping wiring?
(a) The cost is higher ()
(b) **Flammable and fire hazard** ()
(c) Skilled manpower is required ()
(d) Extension is not possible ()

71. Which type of wiring system is suitable for a multi-storey building?
- (a) **Tree system** ()
 - (b) Ring main system ()
 - (c) Distribution board system ()
 - (d) Looping out with junction box ()
72. What size of copper wire is used for lighting circuit?
- (a) **1 sq. mm** ()
 - (b) 1.5 sq. mm ()
 - (c) 2.5 sq. mm ()
 - (d) 4 sq. mm ()
73. Which factors should be considered for selection of supply (single or 3 phase) for wiring?
- (a) Type of wiring system ()
 - (b) Type of building ()
 - (c) **Connected load** ()
 - (d) Cable size ()
74. Which metal is used as filament in incandescent lamp?
- (a) Nichrome ()
 - (b) **Tungsten** ()
 - (c) Eureka ()
 - (d) Silver ()
75. What is the quality of good light?
- (a) Should cover huge area ()
 - (b) There should be bright light ()
 - (c) Consumption should be less ()
 - (d) **Do not put stress on the eyes** ()
76. Where are halogen lamps used?
- (a) Household lighting ()
 - (b) Industrial lighting ()
 - (c) **TV, studio, photography** ()
 - (d) Monitor lighting ()
77. What is the expansion of CFL?
- (a) Compressed filament lamp ()
 - (b) Cathode filament lamp ()
 - (c) Common fluorescent lamp ()
 - (d) **Compact fluorescent lamp** ()
78. Which of the following switches is capable of connecting or disconnecting two connections from two positions?
- (a) Single pole, one-way switch ()
 - (b) Single pole, two-way switch ()
 - (c) **Intermediate switch** ()
 - (d) All options ()

79. Which of the following switches can close the circuit?
- (a) Push button ☐
 - (b) Isolator ☐
 - (c) **Both (a) and (b)** ☐
 - (d) None of these ☐
80. How many single way switches and two way switches are required for wiring a storeroom with 5 lamps?
- (a) 2 single way and 3 two way ☐
 - (b) 4 single way and 1 two way ☐
 - (c) 3 one way and 2 two way ☐
 - (d) **1 single way and 4 two way** ☐
81. What is the colour code of protective earthing conductor as per NE code?
- (a) Blue ☐
 - (b) Black ☐
 - (c) **Green** ☐
 - (d) Red ☐
82. What is the colour code of 3 phase 4 wire AC supply system?
- (a) Red, Yellow, Black, Green ☐
 - (b) **Red, Yellow, Blue, Black** ☐
 - (c) Red, Black, Green, Blue ☐
 - (d) Red, Blue, Black, Yellow ☐
83. What provides a path for electrical wires inside the control panel?
- (a) **Raceway** ☐
 - (b) Control transformer ☐
 - (c) Limit switch ☐
 - (d) Fuse ☐
84. Which of the following is used to connect the control panel accessories to external switches and motors?
- (a) **Terminal connector** ☐
 - (b) DIN Rail ☐
 - (c) Raceway ☐
 - (d) Thermal overload relay ☐
85. Which of the following is used to show the availability of supply in the control panel?
- (a) Limit switch ☐
 - (b) Contractor ☐
 - (c) **Indicating lamp** ☐
 - (d) Isolator ☐
86. The relay should never be set to _____ the actual current drawn by the motor.
- (a) **more than** ☐
 - (b) less than ☐
 - (c) equal to ☐
 - (d) 10 watts ☐

87. Which of the following devices commands the circuit breaker in case of abnormal condition?
- (a) Rectifier ()
 - (b) Relay** ()
 - (c) Transformer ()
 - (d) Transistor ()
88. Which of the following relays is used to protect the motor from overheating?
- (a) Thermal overload relay** ()
 - (b) ELCB ()
 - (c) Electro-mechanical relay ()
 - (d) All options ()
89. _____ is used in water heaters to control the current in the heating element.
- (a) Mixer ()
 - (b) Water cooler ()
 - (c) Blender ()
 - (d) Thermostats** ()
90. What is the classification of underground cables according to their insulation system?
- (a) Single core cable ()
 - (b) XLPE cable** ()
 - (c) Low tension cable ()
 - (d) Super tension cable ()
91. Which of the following insulating materials has the lowest dielectric losses?
- (a) EPR ()
 - (b) XLPE ()
 - (c) PE (Polyethylene)** ()
 - (d) PVC ()
92. Which common fault is likely to occur in underground cables?
- (a) Open circuit fault ()
 - (b) Ground fault** ()
 - (c) Short circuit ()
 - (d) Leakage fault ()
93. Which type of cable fault will occur when the insulation between two conductors is damaged?
- (a) Ground fault ()
 - (b) Open circuit fault ()
 - (c) Short circuit fault** ()
 - (d) Leakage current fault ()
94. Which test is used to detect ground and short circuit faults in UG cables?
- (a) Open circuit test ()
 - (b) Short circuit test ()
 - (c) Loop test** ()
 - (d) Ground test ()

95. The capacity of a storage cell is expressed in:
- (a) **Ampere hour** ()
 - (b) Kilowatt hour ()
 - (c) Kilowatt ampere ()
 - (d) Seconds ()
96. Why are equipment installed on the front side of the switch board in industrial wiring?
- (a) To avoid short circuit ()
 - (b) Easily to operate ()
 - (c) To test the supply frequently ()
 - (d) **To avoid personal contact during maintenance** ()
97. The current in a solar panel is increased by _____.
- (a) connecting solar cells in series ()
 - (b) using NICAD cells in series with solar cells ()
 - (c) **connecting solar cells in parallel** ()
 - (d) using lead-acid cells in series with solar cells ()
98. Nuclear reactor is a part of _____.
- (a) **Nuclear power station** ()
 - (b) Hydro electric power station ()
 - (c) Thermal power station ()
 - (d) Solar energy ()
99. Which conductor is used for overhead distribution lines?
- (a) **Insulated conductor** ()
 - (b) Bare conductor ()
 - (c) Insulated solid conductor ()
 - (d) 2 core conductor ()
100. How is cable size determined for industrial wiring?
- (a) By considering the voltage of the circuit ()
 - (b) By considering the load ()
 - (c) By considering the power factor ()
 - (d) **By considering the current carrying capacity** ()

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