

**GOVERNMENT OF MIZORAM
PUBLIC WORKS DEPARTMENT**

**COMPETITIVE EXAMINATION FOR RECRUITMENT TO
THE POST OF ELECTRICIAN GRADE-II (PE)
(SEPTEMBER -2026)**

**PAPER-II
(SAFETY, BASIC OF ELECTRICAL, WIRING &
CIRCUITS, CELLS & BATTERY & WIRING SYSTEMS
& MEASURING INSTRUMENTS)**

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
Paper-II	2		
TOTAL			

Signature of Examiner : _____

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All questions carry 2 marks each.

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.

PAPER - II (TECHNICAL PAPER) (200 MARKS)

1. Which of the following is the safest method to verify that an electrical circuit is de-energized?
 - (a) Ask a co-worker if the power is off. ()
 - (b) Turn the switch OFF and start work. ()
 - (c) **Use an approved voltage tester after isolating the supply.** ()
 - (d) Touch the conductor with the back of your hand. ()
2. Which of the following is considered an unsafe practice while working on electrical equipment?
 - (a) Using insulated tools ()
 - (b) Wearing rubber insulating gloves ()
 - (c) **Working on live equipment without authorization** ()
 - (d) Displaying a warning sign ()
3. Which of the following is a common fire extinguisher used for electrical fires?
 - (a) Water extinguisher ()
 - (b) **CO₂ extinguisher** ()
 - (c) Foam extinguisher ()
 - (d) Sand bucket ()
4. Why is it important to keep the workplace clean and dry?
 - (a) To improve the appearance of the workplace ()
 - (b) To increase the speed of work ()
 - (c) To reduce electricity consumption ()
 - (d) **To reduce the risk of slips, trips, and electric shock** ()
5. What is the main purpose of a Lockout/Tagout (LOTO) procedure?
 - (a) To improve machine performance ()
 - (b) To identify faulty equipment ()
 - (c) **To prevent accidental energization during maintenance** ()
 - (d) To reduce power consumption ()
6. BIS stands for:
 - (a) Bureau of Indian Safety ()
 - (b) **Bureau of Indian Standards** ()
 - (c) Board of Indian Standards ()
 - (d) Bureau of Industrial Safety ()

7. Which organization is responsible for formulating Indian Standards?
- (a) **BIS** ()
 - (b) CEA ()
 - (c) CPWD ()
 - (d) BHEL ()
8. Which tool is mainly used for cutting electrical wires?
- (a) Combination pliers ()
 - (b) Screwdriver ()
 - (c) **Wire stripper** ()
 - (d) Hammer ()
9. Which tool is commonly used to tighten or loosen nuts and bolts?
- (a) Chisel ()
 - (b) Punch ()
 - (c) File ()
 - (d) **Spanner** ()
10. Which tool is used for making holes in metal before drilling?
- (a) **Centre punch** ()
 - (b) File ()
 - (c) Spanner ()
 - (d) Plier ()
11. The Indian Electricity Rules are mainly intended to:
- (a) Increase electricity generation ()
 - (b) **Ensure electrical safety** ()
 - (c) Reduce electricity tariffs ()
 - (d) Improve power factor ()
12. The purpose of electrical wiring codes is to:
- (a) Increase conductor resistance ()
 - (b) Reduce transformer losses ()
 - (c) **Ensure safe electrical installations**()
 - (d) Increase current ()
13. Electric current is the flow of:
- (a) **Electrons** ()
 - (b) Protons ()
 - (c) Neutrons ()
 - (d) Molecules ()
14. The SI unit of electric current is:
- (a) Volt ()
 - (b) Ohm ()
 - (c) **Ampere** ()
 - (d) Watt ()

15. The SI unit of electrical energy is:

- (a) Watt ()
- (b) **Joule** ()
- (c) Volt ()
- (d) Ampere ()

16. Which of the following materials is a good conductor of electricity?

- (a) Rubber ()
- (b) Glass ()
- (c) **Copper** ()
- (d) Wood ()

17. Which of the following is an insulator?

- (a) Copper ()
- (b) Aluminium ()
- (c) **PVC** ()
- (d) Silver ()

18. Silicon is classified as a:

- (a) Conductor ()
- (b) Alloy ()
- (c) Insulator ()
- (d) **Semiconductor** ()

19. The opposition offered by a conductor to the flow of electric current is called:

- (a) Voltage ()
- (b) **Resistance** ()
- (c) Power ()
- (d) Energy ()

20. According to Ohm's Law:

- (a) **$V = IR$** ()
- (b) $I = VR$ ()
- (c) $P = IR$ ()
- (d) $R = VI$ ()

21. Electrical power is measured in:

- (a) Joule ()
- (b) Ampere ()
- (c) **Watt** ()
- (d) Volt ()

22. The formula for electrical power is:

- (a) **$P = VI$** ()
- (b) $P = V/I$ ()
- (c) $P = IR$ ()
- (d) $P = R/I$ ()

23. One kilowatt is equal to:

- (a) 100 W ()
- (b) 10 W ()
- (c) 10000 W ()
- (d) **1000 W** ()

24. A 100 W lamp operates for 10 hours. The electrical energy consumed is:

- (a) 0.1 kWh ()
- (b) **1 kWh** ()
- (c) 10 kWh ()
- (d) 100 kWh ()

25. If the voltage across a resistor is doubled while the resistance remains constant, the current will:

- (a) Become half ()
- (b) Remain the same ()
- (c) **Double** ()
- (d) Become zero ()

26. Which of the following is the correct formula for Ohm's Law?

- (a) $V=I/R$ ()
- (b) **$V=IR$** ()
- (c) $I=VR$ ()
- (d) $R=VI$ ()

27. What is the main purpose of soldering in electrical work?

- (a) To increase wire resistance ()
- (b) **To join conductors electrically and mechanically** ()
- (c) To insulate the conductor ()
- (d) To reduce voltage ()

28. What happens to the current in an open circuit?

- (a) It becomes maximum ()
- (b) **It becomes zero** ()
- (c) It becomes infinite ()
- (d) It remains unchanged ()

29. Flux is used during soldering to:

- (a) Increase resistance ()
- (b) Cool the solder ()
- (c) Increase current ()
- (d) **Remove oxide from the metal surface** ()

30. Which joint is commonly used to join two straight conductors?

- (a) **Britannia Joint** ()
- (b) Tee Joint ()
- (c) Married Joint ()
- (d) Pig-tail Joint ()

31. Which soldering iron is generally used for heavy cable joints?
- (a) Pencil soldering iron ()
 - (b) Electric iron only ()
 - (c) Soldering gun ()
 - (d) **Heavy copper bit soldering iron** ()
32. PVC insulated cables are mainly used because they are:
- (a) Very expensive ()
 - (b) **Flexible and moisture resistant** ()
 - (c) Poor insulators ()
 - (d) Heavy in weight ()
33. Which test is commonly performed to check the insulation condition of an underground cable?
- (a) **Megger Test** ()
 - (b) Continuity Test ()
 - (c) Open Circuit Test ()
 - (d) Load Test ()
34. The metallic covering provided around underground cables mainly protects against:
- (a) High frequency ()
 - (b) **Mechanical damage and moisture** ()
 - (c) Increase in voltage ()
 - (d) Current leakage only ()
35. The insulation level of a cable is selected mainly based on:
- (a) Frequency ()
 - (b) Current only ()
 - (c) Length ()
 - (d) **Voltage rating** ()
36. Kirchhoff's Current Law (KCL) states that:
- (a) **Sum of currents entering a junction equals the sum leaving it.** ()
 - (b) Sum of voltages is zero. ()
 - (c) Power is conserved. ()
 - (d) Resistance remains constant. ()
37. A resistor of $10\ \Omega$ is connected across 50 V. What is the current?
- (a) 2 A ()
 - (b) **5 A** ()
 - (c) 10 A ()
 - (d) 25 A ()
38. In a parallel circuit, the voltage across each branch is:
- (a) Zero ()
 - (b) Different ()
 - (c) **Equal to the supply voltage** ()
 - (d) Half of supply voltage ()

39. Two resistors $5\ \Omega$ and $10\ \Omega$ are connected in series. Their total resistance is:
- (a) $5\ \Omega$ ()
 - (b) $10\ \Omega$ ()
 - (c) **$15\ \Omega$** ()
 - (d) $50\ \Omega$ ()
40. Which connection is used in domestic wiring?
- (a) Series ()
 - (b) **Parallel** ()
 - (c) Series-Parallel ()
 - (d) Delta ()
41. If one lamp in a parallel circuit fails:
- (a) All lamps go OFF ()
 - (b) Supply voltage doubles ()
 - (c) Fuse blows ()
 - (d) **Only that lamp goes OFF** ()
42. Which bridge circuit is commonly used to measure unknown resistance accurately?
- (a) Maxwell Bridge ()
 - (b) Schering Bridge ()
 - (c) **Wheatstone Bridge** ()
 - (d) Kelvin Bridge ()
43. The resistance of a metallic conductor generally:
- (a) Decreases with increase in temperature ()
 - (b) **Increases with increase in temperature** ()
 - (c) Becomes zero ()
 - (d) Remains constant always ()
44. Which material is commonly used for making the core of an electromagnet?
- (a) **Soft iron** ()
 - (b) Copper ()
 - (c) Aluminium ()
 - (d) Brass ()
45. The SI unit of magnetic flux is:
- (a) Tesla ()
 - (b) Gauss ()
 - (c) Henry ()
 - (d) **Weber** ()
46. According to Faraday's law, an emf is induced when:
- (a) Current remains constant ()
 - (b) Resistance increases ()
 - (c) **Magnetic flux linking a conductor changes** ()
 - (d) Voltage decreases ()

47. Lenz's law states that the direction of induced emf:
- (a) Assists the cause producing it ()
 - (b) Opposes the change producing it** ()
 - (c) Is always clockwise ()
 - (d) Is independent of magnetic flux ()
48. A coil has 200 turns. The magnetic flux linking the coil changes from 0.10 Wb to 0.05 Wb in 0.5 s. The average induced emf is:
- (a) 20 V** ()
 - (b) 15 V ()
 - (c) 30 V ()
 - (d) 40 V ()
49. Eddy currents are mainly reduced by using:
- (a) Laminated cores** ()
 - (b) Copper cores ()
 - (c) Plastic cores ()
 - (d) Aluminium sheets ()
50. Hysteresis loss mainly occurs in:
- (a) Copper conductors ()
 - (b) Magnetic cores** ()
 - (c) Resistors ()
 - (d) Capacitors ()
51. Which instrument works on the principle of electromagnetic induction?
- (a) Transformer** ()
 - (b) Ammeter ()
 - (c) Fuse ()
 - (d) Rheostat ()
52. The SI unit of capacitance is:
- (a) Henry ()
 - (b) Tesla ()
 - (c) Ohm ()
 - (d) Farad** ()
53. A capacitor stores:
- (a) Heat energy ()
 - (b) Magnetic energy ()
 - (c) Electrical charge** ()
 - (d) Mechanical energy ()
54. Capacitors connected in parallel have:
- (a) Lower total capacitance ()
 - (b) Higher total capacitance** ()
 - (c) Zero capacitance ()
 - (d) Same capacitance as one capacitor ()

55. Which of the following supplies has constant polarity?
(a) AC ()
(b) Three-phase AC ()
(c) Pulsating AC ()
(d) **DC** ()
56. The standard frequency of AC supply in India is:
(a) 25 Hz ()
(b) 40 Hz ()
(c) **50 Hz** ()
(d) 60 Hz ()
57. One advantage of AC over DC is that:
(a) AC cannot be transformed. ()
(b) AC has constant polarity. ()
(c) AC cannot operate motors. ()
(d) **AC can be transmitted over long distances economically.** ()
58. In a balanced three-phase system, the phase difference between any two phases is:
(a) 60° ()
(b) 90° ()
(c) **120°** ()
(d) 180° ()
59. Which connection is commonly used for three-phase induction motors?
(a) Series ()
(b) Parallel ()
(c) **Star-Delta** ()
(d) Open Delta only ()
60. Power factor is the ratio of:
(a) kVA / kW ()
(b) **kW / kVA** ()
(c) kVAR / kW ()
(d) Voltage / Current ()
61. The power factor of a purely resistive circuit is:
(a) 0 ()
(b) 0.5 ()
(c) **1** ()
(d) 0.8 ()
62. The commercial unit of electrical energy is:
(a) Joule ()
(b) Watt ()
(c) **Kilowatt-hour (kWh)** ()
(d) Volt ()

63. A 1.5 kW electric heater operates for 4 hours. The electrical energy consumed is:
- (a) 4 kWh ()
 - (b) 5 kWh ()
 - (c) **6 kWh** ()
 - (d) 7 kWh ()
64. Which instrument is used to measure electrical power?
- (a) Ammeter ()
 - (b) **Wattmeter** ()
 - (c) Voltmeter ()
 - (d) Frequency meter ()
65. The process by which electric current produces a chemical change is called:
- (a) Electroplating ()
 - (b) Induction ()
 - (c) Magnetization ()
 - (d) **Electrolysis** ()
66. In an electrolytic cell, the electrode connected to the positive terminal of the DC supply is called:
- (a) **Anode** ()
 - (b) Cathode ()
 - (c) Neutral ()
 - (d) Collector ()
67. During electrolysis, reduction takes place at the:
- (a) Anode ()
 - (b) Separator ()
 - (c) Electrolyte ()
 - (d) **Cathode** ()
68. According to Faraday's First Law of Electrolysis, the mass of substance deposited is directly proportional to:
- (a) Voltage ()
 - (b) Resistance ()
 - (c) **Quantity of electrical charge passed** ()
 - (d) Temperature ()
69. Which of the following is a primary cell?
- (a) Lead-acid battery ()
 - (b) Nickel-Cadmium battery ()
 - (c) **Dry cell** ()
 - (d) Lithium-ion battery ()
70. Which battery is commonly used in automobiles?
- (a) Dry cell ()
 - (b) Mercury cell ()
 - (c) Silver oxide battery ()
 - (d) **Lead-acid battery** ()

71. The electrolyte used in a lead-acid battery is:
- (a) Hydrochloric acid ()
 - (b) Sulphuric acid** ()
 - (c) Nitric acid ()
 - (d) Distilled water ()
72. The main purpose of distilled water in a lead-acid battery is to:
- (a) Maintain the electrolyte level** ()
 - (b) Increase voltage ()
 - (c) Increase current ()
 - (d) Reduce battery weight ()
73. Which of the following practices increases the life of a lead-acid battery?
- (a) Overcharging ()
 - (b) Using tap water regularly ()
 - (c) Allowing complete discharge for long periods ()
 - (d) Keeping electrolyte at the correct level** ()
74. Which metal is commonly used for electroplating iron to prevent rusting?
- (a) Copper ()
 - (b) Zinc** ()
 - (c) Aluminium ()
 - (d) Lead ()
75. A battery has an emf of 12 V and supplies 2 A current for 5 hours. The ampere-hour (Ah) capacity delivered is:
- (a) 5 Ah ()
 - (b) 7 Ah ()
 - (c) 10 Ah** ()
 - (d) 24 Ah ()
76. Three cells of 1.5 V each are connected in series. The total voltage is:
- (a) 1.5 V ()
 - (b) 3.0 V ()
 - (c) 4.5 V** ()
 - (d) 6.0 V ()
77. Two identical 12 V batteries are connected in parallel. The output voltage is:
- (a) 6 V ()
 - (b) 12 V** ()
 - (c) 24 V ()
 - (d) 36 V ()
78. Which of the following is NOT a secondary (rechargeable) battery?
- (a) Lead-acid battery ()
 - (b) Nickel-Cadmium battery ()
 - (c) Lithium-ion battery ()
 - (d) Zinc-carbon dry cell** ()

79. Which of the following is an advantage of connecting cells in series?
- (a) The current capacity increases while voltage remains the same. ()
 - (b) The voltage increases while the current capacity remains the same.** ()
 - (c) Both voltage and current become zero. ()
 - (d) The internal resistance becomes zero. ()
80. What is the function of the separator in a lead-acid battery?
- (a) To increase the battery voltage ()
 - (b) To cool the battery ()
 - (c) To store electrical energy ()
 - (d) To prevent direct contact between the positive and negative plates while allowing ion flow** ()
81. Which type of wiring is most commonly used in modern residential buildings?
- (a) Cleat wiring ()
 - (b) Batten wiring ()
 - (c) PVC conduit wiring** ()
 - (d) CTS wiring ()
82. The main purpose of a distribution board (DB) is to:
- (a) Increase voltage ()
 - (b) Distribute electrical power safely to different circuits** ()
 - (c) Reduce frequency ()
 - (d) Store electrical energy ()
83. Which wiring accessory is used to protect a circuit from excessive current?
- (a) Lamp holder ()
 - (b) Fuse** ()
 - (c) Ceiling rose ()
 - (d) Socket outlet ()
84. Which colour is generally used for the earth conductor?
- (a) Red ()
 - (b) Black ()
 - (c) Green** ()
 - (d) Yellow ()
85. While planning domestic wiring, the first step is to:
- (a) Install switches ()
 - (b) Estimate the electrical load** ()
 - (c) Purchase cables ()
 - (d) Connect the meter ()
86. The main purpose of earthing is to:
- (a) Increase voltage ()
 - (b) Improve lighting ()
 - (c) Increase current ()
 - (d) Protect people from electric shock** ()

87. Which type of earthing is commonly used for domestic buildings?

- (a) Plate earthing ()
- (b) **Pipe earthing** ()
- (c) Chemical earthing ()
- (d) Rod earthing ()

88. Which instrument is used to measure the insulation of Transformer?

- (a) **Megger** ()
- (b) Earth Tester ()
- (c) Multimeter ()
- (d) Clamp Meter ()

89. If the earth resistance is too high, the electrician should:

- (a) Remove the earth wire ()
- (b) **Improve the earthing system** ()
- (c) Disconnect the neutral ()
- (d) Increase the supply voltage ()

90. The earth wire should normally carry:

- (a) Full load current ()
- (b) Starting current ()
- (c) Neutral current ()
- (d) **Fault current only** ()

91. Which lamp has the highest energy efficiency?

- (a) Incandescent lamp ()
- (b) CFL ()
- (c) **LED lamp** ()
- (d) Halogen lamp ()

92. The total amount of light emitted by a lamp is measured in:

- (a) Lux ()
- (b) **Lumen** ()
- (c) Candela ()
- (d) Ohm ()

93. A workshop requires bright and uniform lighting. Which type of lamp is most suitable?

- (a) Candle lamp ()
- (b) **LED lamp** ()
- (c) Oil lamp ()
- (d) Incandescent lamp ()

94. A voltmeter is connected:

- (a) In series ()
- (b) To earth only ()
- (c) **In parallel** ()
- (d) Across the fuse only ()

95. Which instrument measures transformer winding resistance?
(a) Wattmeter ()
(b) Megger ()
(c) Clamp meter ()
(d) **Multimeter** ()
96. Which instrument is commonly used to measure AC current without disconnecting the conductor?
(a) Megger ()
(b) **Clamp Meter** ()
(c) Hydrometer ()
(d) Earth Tester ()
97. Before measuring resistance using a multimeter, the supply should be:
(a) ON ()
(b) Reduced ()
(c) Increased ()
(d) **OFF** ()
98. A voltmeter shows a reading lower than the actual voltage due to instrument error. This is known as:
(a) **Measurement error** ()
(b) Calibration error ()
(c) Short circuit error ()
(d) Earth fault error ()
99. The process of comparing an instrument with a standard instrument is called:
(a) Testing ()
(b) Maintenance ()
(c) Servicing ()
(d) **Calibration** ()
100. Before energizing a newly completed wiring installation, the electrician should first:
(a) Switch ON the main supply immediately. ()
(b) **Check insulation resistance and continuity.** ()
(c) Check all switches and plugs. ()
(d) Check the earth connection. ()

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