



**OFFICE OF THE ENGINEER-IN-CHIEF
PUBLIC HEALTH ENGINEERING DEPARTMENT
AIZAWL : MIZORAM**

**WRITTEN EXAMINATION : 2025
FOR THE POST OF**

**WELDER
(P.E & REGULAR)**

PAPER-III

Code No: _____
(For Official Use)

Signature of Invigilator

SUBJECT (Part)	MARKS OBTAINED
Technical/Specialised Subject (100x2=200 marks)	
Total Marks obtained (Full Marks-200)	

Signature of Examiner



**OFFICE OF THE ENGINEER-IN-CHIEF
PUBLIC HEALTH ENGINEERING DEPARTMENT
AIZAWL : MIZORAM**

**WRITTEN EXAMINATION : 2025
FOR THE POST OF**

**WELDER
(P.E & REGULAR)**

PAPER-III

Code No: _____
(For Official Use)

Roll No: _____
(To be filled in by Candidate)

Signature of Candidate

Signature of Invigilator

Instructions:

1. The question paper will also serve as the answer sheet. Candidates are required to answer directly on the question/answer sheet using Tick (✓) Marks.
2. Time : 3 Hours

WELDER : PAPER-III (Technical Papers)

(Each question carry 2(two) marks, the total is 200 marks and all question carry equal mark)

1. Which of the following is an insulating material againsts electric supply ?
(a) Copper ☐ (b) Plastic ☐
(c) Iron ☐ (d) Salt water ☐
2. When attending a person under electric shock, the first thing to do is _____
(a) Stand on insulating material and pull off the victim ☐
(b) Call for medical help ☐
(c) Switching off the power supply ☐
(d) Revive the victim by sprinkling water ☐
3. The severity of electric shock mainly depends on _____
(a) The surrounding atmosphere ☐ (b) Health condition of the victim ☐
(c) Main voltage ☐ (d) Level of current ☐
4. In case of eye injury due to metal chips entering the eye
(a) Rub the eye immediately with hand ☐ (b) Go immediately to doctor ☐
(c) Apply eye drop or ointment ☐ (d) None of the above ☐
5. Pressure in gas cylinders increases with _____
(a) Temperature ☐ (b) Humidity ☐
(c) Methane concentration ☐ (d) Acetyline concentration ☐
6. In heavy industries, very thick metal plates are joined by
(a) Soldering and brazing ☐ (b) Welding ☐
(c) Bolting ☐ (d) Riveting ☐
7. Which is not a safe activity during shielded metal arc welding process ?
(a) Welding in a wet area ☐ (b) Wearing eye protection ☐
(c) Welding in air void area ☐ (d) Welding on insulated area ☐
8. In oxyacetylene welding, acetylene cylinder should be open in _____
(a) 1/4 - 1/2 turn ☐ (b) 1/4 - 3/4 turn ☐
(c) Full turn ☐ (d) None of the above ☐
9. In oxyacetylene welding, open and light acetylene first, then open and adjust oxygen to
(a) Neutral flame ☐ (b) Full flame ☐
(c) Half flame ☐ (d) Quarter flame ☐
10. In oxycetylene welding, all equipments including gloves and clothing should be kept free of _____
(a) Alcohol ☐ (b) Water ☐
(c) Grease and oil ☐ (d) All of the above ☐
11. Thread diameter of hexagonal head bolt M10 equals to _____
(a) 0.01m ☐ (b) 0.1 cm ☐
(c) 10mm ☐ (d) 1 cm ☐

12. Jointing two or more sheets of metal permanently is done by _____
 (a) Riveting ☐ (b) Soldering ☐
 (c) Brazing ☐ (d) Seaming ☐
13. Brazing is a process of jointing metals in which base metal is heated _____
 (a) Above 120°C and below 420°C ☐ (b) Above 400°C and below 600°C ☐
 (c) Above 420°C and below 650°C ☐ (d) Above 420°C and below 850°C ☐
14. Which type of weld joint is shown in the figure?
 (a) Butt Joint ☐ (b) Fillet Joint ☐
 (c) Lap Joint ☐ (d) Edge Joint ☐
15. Acetylene gas stored in the cylinder is in dissolved state the pressure ranging between
 (a) 15-16 kg/cm² ☐ (b) 25-56 kg/cm² ☐
 (c) 35-36 kg/cm² ☐ (d) 45-46 kg/cm² ☐
16. What is the name of the instrument shown in the figure ?
 (a) Spanner ☐ (b) Try square ☐
 (c) Angle file ☐ (d) Mallet ☐
17. 1200mm is equal to _____
 (a) 12 cm ☐ (b) 12 m ☐
 (c) 0.12 m ☐ (d) 1.2 m ☐
18. SMAW / MMAW is a type of _____
 (a) Electron beam welding ☐ (b) Electric resistance welding ☐
 (c) Electric arc welding ☐ (d) Induction welding ☐
19. Arc welding cable is usually made of _____
 (a) Carbon ☐ (b) Copper ☐
 (c) Iron ☐ (d) Lead ☐
20. Soft solders are alloys of _____ in varying proportions.
 (a) Iron and copper ☐ (b) Tin and Lead ☐
 (c) Carbon and zinc ☐ (d) Cadmium and zinc ☐
21. According to Ohm's law, a current passing through a wire having resistance of 10 ohm's and voltage of 400V is
 (a) 1.4 amp ☐ (b) 0.25 amp ☐
 (c) 4 amp ☐ (d) 40 amp ☐
22. The temperature of a material measuring 100°C is equivalent to _____
 (a) 202°F ☐ (b) 212°F ☐
 (c) 222°F ☐ (d) 232°F ☐
23. When high current passes through an air gap from one conductor to another, it produces a spark of temperature _____ which can melt and fuse metals very quickly.
 (a) 2000°C ☐ (b) 2600°C ☐
 (c) 3200°C ☐ (d) 3600°C ☐
24. Flux coating on the electrode melts due to the arc heat resulting in the _____
 (a) Production of carbon monoxide and hydrogen ☐
 (b) Production of carbon dioxide and nitrogen ☐
 (c) Production of carbon dioxide and oxygen ☐
 (d) Production of oxygen and high voltage ☐

25. In AC welding transformer, AC welding AC supply has _____
 (a) Low ampere and voltage ☐ (b) High ampere and voltage ☐
 (c) High ampere and low voltage ☐ (d) Low ampere and high voltage ☐
26. AC welding transformer is not suitable for _____
 (a) Welding of non-ferrous metals ☐ (b) Bare wire electrodes ☐
 (c) Fine current setting in welding special jobs ☐ (d) All of the above ☐
27. A welding rectifier set is used to convert welding supply of _____
 (a) DC to PV supply ☐ (b) DC to AC Supply ☐
 (c) AC to DC supply ☐ (d) None of the above ☐
28. Open circuit voltage for arc welding is of the order of _____
 (a) 18-40 volts ☐ (b) 40-95 volts ☐
 (c) 100-125 volts ☐ (d) 130-170 volts ☐
29. Plate Welding position for groove weld coded as EN-PC and ASME -2G is _____
 (a) Flat ☐ (b) Horizontal ☐
 (c) Vertical ☐ (d) Overhead ☐
30. What is the weld slope and rotation shown in the figure ?
 (a) Slope = 0^0 , Rotation = 0^0 ☐ (b) Slope = 90^0 , Rotation = 0^0 ☐
 (c) Slope = 0^0 , Rotation = 90^0 ☐ (d) Slope = 90^0 , Rotation = 90^0 ☐
31. What is the symbol of weld shown in the figure ?
 (a) Single V butt weld ☐
 (b) Single bevel butt weld ☐
 (c) Single V butt weld with broad root face ☐
 (d) Single bevel butt weld with broad root face ☐
32. The distance from the joint root to the toe of the weld is called _____
 (a) Leg ☐ (b) Face ☐
 (c) Effective throat ☐ (d) Actual throat ☐
33. In a welding process, the welding parameters used are : welding current = 250 A, welding voltage = 25V, and welding traverse speed = 6mm/s. Find the welding power.
 (a) 6.55 kW ☐ (b) 65.5 kW ☐
 (c) 62.5 kW ☐ (d) 6.25 kW ☐
34. Preheating of workpiece is essential in welding _____
 (a) Cast Steel ☐ (b) Stainless Steel ☐
 (c) Cast Iron ☐ (d) Aluminium ☐
35. Polarity in arc welding indicates the _____ of current flow welding circuit
 (a) Magnitude ☐ (b) Resistance ☐
 (c) Amplitude ☐ (d) Direction ☐
36. Arc blow in DC welding occurs due to
 (a) Magnetic disturbance ☐ (b) Irregular electric supply ☐
 (c) Poor electrode quality ☐ (d) Faulty earth connection ☐
37. Recommended diverging allowances for (mild steel) ferrous metals is _____
 (a) 2mm/m ☐ (b) 3mm/m ☐
 (c) 4 mm/m ☐ (d) 5mm/m ☐

38. Which weld defect occurs both as external and internal defect?
 (a) Overlap ☐ (b) Spatters ☐
 (c) Undercut ☐ (d) Crack ☐
39. In which of the following aspects of DC welding better than AC welding ?
 (a) Efficiency ☐ (b) Power consumption ☐
 (c) Cost ☐ (d) Arc stability ☐
40. Welding generator can produce _____
 (a) Both AC and DC ☐ (b) AC only ☐
 (c) AC only ☐ (d) None of these ☐
41. Which of the following gas flame produce the highest temperature?
 (a) Oxy-acetylene flame ☐ (b) Oxy-hydrogen flame ☐
 (c) Oxy-coal gas flame ☐ (d) Oxy-liquid petroleum gas flame ☐
42. Oxygen and acetylene gases are mixed in equal proportion in the blowpipe of _____
 (a) Neutral flame ☐ (b) Oxidising flame ☐
 (c) Carburising flame ☐ (d) All types of flame ☐
43. Oxy-acetylene cutting torch is used to cut mild steel plates of thickness above _____
 (a) 2 mm ☐ (b) 3 mm ☐
 (c) 4 mm ☐ (d) 5mm ☐
44. Calcium carbide is a chemical compound consisting of _____ by weight.
 (a) Calcium = 67.5 %, Carbon = 32.5 % ☐ (b) Calcium = 62.5 %, Carbon = 37.5 % ☐
 (c) Calcium = 57.5 %, Carbon = 42.5 % ☐ (d) Calcium = 52.5 %, Carbon = 47.5 % ☐
45. Which of the following is not a property of acetylene gas ?
 (a) Acetylene gas is heavier than air ☐
 (b) Acetylene gas dissolves in acetone liquid ☐
 (c) It is highly inflammable ☐
 (d) It is soluble in water and alcohol ☐
46. The process by which oxygen combines with metals to form oxide is known as _____
 (a) Reduction ☐ (b) Oxidation ☐
 (c) Condensation ☐ (d) Liquefaction ☐
47. Oxygen cylinder is filled with oxygen gas under a pressure of _____
 (a) 100 - 130 kg/cm² ☐ (b) 110 - 140 kg/cm² ☐
 (c) 120-150 kg/cm² ☐ (d) 130 -160 kg/cm² ☐
48. Most common hydrocarbon liquid which is charged in to cylinders to fill porous substance is _____
 (a) Butane ☐ (b) Ethane ☐
 (c) Gasoline ☐ (d) Acetone ☐
49. In single stage welding regulator, which valve controls the gas entering the body of regulator ?
 (a) Inlet valve ☐ (b) Shut off valve ☐
 (c) Needle valve ☐ (d) Reflux valve ☐
50. Which valve is used between the acetylene generator and blowpipe, to prevent acetylene generator from exploding?
 (a) Back presure valve ☐ (b) Shut off valve ☐
 (c) Diaphragm valve ☐ (d) Blow-off valve ☐

51. Forehead technique of oxy-acetylene gas welding process is also called _____.
 (a) Leftward welding technique ☐ (b) Rightward welding technique ☐
 (c) Backward welding technique ☐ (d) Forward welding technique ☐
52. For fillet joints by oxy-acetylene gas welding of MS plates, _____ size large nozzle is to be used.
 (a) One fourth ☐ (b) Half ☐
 (c) One ☐ (d) Two ☐
53. Backward technique of oxy-acetylene gas welding is used for welding of mild steel up to _____.
 (a) 3mm thick ☐ (b) 4 mm thick ☐
 (c) 5 mm thick ☐ (d) 6 mm thick ☐
54. All mild steel filler rods are given a thin layer of ____ coating to protect them from rusting during storage
 (a) Zinc ☐ (b) Carbon ☐
 (c) Aluminium ☐ (d) Copper ☐
55. Which of the following is not possible causes of welding defect of lack of root penetration?
 (a) Incorrect joint penetration and set up ☐ (b) Gap too small ☐
 (c) Root edges touching ☐ (d) Atmospheric contamination ☐
56. What is the bevel angle for pipe welding butt joint if wall thickness is more than 5mm?
 (a) 60° ☐ (b) 75° ☐
 (c) 80° ☐ (d) 90° ☐
57. How many equal divisions should be made while developing a 'T' pipe joint?
 (a) 4 equal divisions ☐ (b) 6 equal divisions ☐
 (c) 9 equal divisions ☐ (d) 12 equal divisions ☐
58. What should be the bevel angle for edge preparation of 6mm thick pipe welding ?
 (a) 30° - 35° ☐ (b) 40° - 45° ☐
 (c) 60° - 65° ☐ (d) 70° - 75° ☐
59. What type of edge preparation is need, for gas welding a pipe, with wall thickness 6mm ?
 (a) Single "V" ☐ (b) Single bevel ☐
 (c) Square edge with root gap ☐ (d) Square edge without root gap ☐
60. What size of electrode is used to weld 5mm wall thickness pipe ?
 (a) Ø 2.5 mm ☐ (b) Ø 3.15 mm ☐
 (c) Ø 4.00 mm ☐ (d) Ø 5.00 mm ☐
61. What are the four clock position, in pipe welding ?
 (a) 6, 12, 3, 9' o clock points ☐ (b) 11, 5, 8, 2' o clock points ☐
 (c) 10, 4, 1, 7' o clock points ☐ (d) 9, 3, 12, 6' o clock points ☐
62. What is the angle of pipe axis the base for making an elbow joint?
 (a) 30° ☐ (b) 45° ☐
 (c) 75° ☐ (d) 90° ☐
63. How a pipe is specified ?
 (a) Diameter only ☐ (b) Length only ☐
 (c) Outer diameter only ☐ (d) Outer diameter, inner diameter & length ☐

64. In pipe welding, the position inclines the pipe at 45° angle to create a sloping surface is.
 (a) 1G welding ☐ (b) 2G welding ☐
 (c) 5G welding ☐ (d) 6G welding ☐
65. Jointing of two or more pipes together without use of fitting is known to be.
 (a) Pipe jointing ☐ (b) Pipe fitting ☐
 (c) Pipe welding ☐ (d) Pipe threading ☐
66. What is the primary purpose of pre-heating in pipe welding ?
 (a) To increase the speed of welding ☐
 (b) To reduce the risk of cracking during welding ☐
 (c) To lower melting point of the base metal ☐
 (d) To improve the aesthetics of the weld ☐
67. Which welding process is most commonly used for pipe welding ?
 (a) Gas Metal Arc Welding ☐ (b) Shielded Metal Arc Welding ☐
 (c) Gas Tungsten Arc Welding ☐ (d) All of the above ☐
68. What is the purposed of weld bead?
 (a) To create a smooth surface ☐
 (b) To provide a strong joint between two pieces of pipe ☐
 (c) To reduce a mount of heat input ☐
 (d) To increase the diameter of the pipe ☐
69. What type of shielding gas is commonly used in pipe welding?
 (a) Argon ☐ (b) Helium ☐
 (c) Nitrogen ☐ (d) Oxygen ☐
70. What is a root pass in pipe welding ?
 (a) The first layer of weld, often in the root of the joint ☐
 (b) The final layer of weld, for aesthetics ☐
 (c) The welding procedure used on the root ☐
 (d) A defect in the weld ☐
71. What is the current range required for 3.15mm dia MS electrode in arc welding ?
 (a) 40 - 50 A ☐ (b) 50 - 60 A ☐
 (c) 70 - 80 A ☐ (d) 100 -110 A ☐
72. What is the preheating temperature of cast iron ?
 (a) 200 to 310° C ☐ (b) 250 to 350° C ☐
 (c) 300 to 350°C ☐ (d) 350 to 450°C ☐
73. How is the electrode size identified ?
 (a) Length of Electrode ☐ (b) Thickness off flux coated ☐
 (c) Diameter (over all) of electrode ☐ (d) Diameter of inner core wire ☐
74. Which one of the defect is caused by low current in arc welding?
 a) Poracity ☐ b) Under cut ☐
 c) Lack of fusion ☐ d) Excessice penetration ☐
75. What is the process heating steel to specific temperature and cooling suddenly ?
 (a) Annealing ☐ (b) Hardening ☐
 (c) Tempering ☐ (d) Quenching ☐

76. What is the main function of the flux coating in electrodes ?
 (a) To prevent rusting ☐ (b) To stabilize the arc ☐
 (c) To control arc temperature ☐ (d) To increase welding current ☐
77. What is the name of the steel material that is not weldable?
 (a) High carbon steel ☐ (b) Medium carbon steel ☐
 (c) Austenitic stainless steel ☐ (d) Ferrite & martensitic stainless steel ☐
78. Which metal in welding process is subjected to “weld decay” defect ?
 (a) Brass ☐ (b) Copper ☐
 (c) Mild steel ☐ (d) Stainless steel ☐
79. What is the main purpose of ‘Normalising’ steel?
 (a) To control hardness ☐
 (b) To prevent cracking ☐
 (c) To make welding operation easier ☐
 (d) To produce fine grain uniform structure ☐
80. What is the main function of the flux coating in electrodes ?
 (a) To prevent rusting ☐ (b) To stabilize the arc ☐
 (c) To control arc temperature ☐ (d) To increase welding current ☐
81. The electrode that are not coating are called.
 (a) Bare electrodes ☐ (b) Raw electrode ☐
 (c) Base electrodes ☐ (d) Nude electrodes ☐
82. This type of electrodes will pick-up moisture easily.
 (a) Acidic coated electrodes ☐ (b) Rutile electrodes ☐
 (c) Basic coated electrodes ☐ (d) Titanium coated electrodes ☐
83. Heavy coated electrode is normally suitable for
 (a) Welding in flat position ☐ (b) Deep groove joint in vertical suitable for ☐
 (c) AC welding ☐ (d) Thick plates in any position ☐
84. One of the function of electrodes coating is.
 (a) To increase welding current ☐ (b) To stabilize the arc ☐
 (c) To prevent rusting ☐ (d) To control arc temperature ☐
85. What does the third digit of AWS Condification in EB 542HJX represent ?
 (a) Type of current ☐ (b) Type of covering ☐
 (c) Type of tensile strength ☐ (d) Type of welding position ☐
86. Which gas is generated during GMAW on using CO₂ as shielding gas?
 (a) Helium ☐ (b) Carbon Monoxide ☐
 (c) Argon ☐ (d) Oxygen ☐
87. What is the difficulty in starting of arc in GMAW?
 (a) Wrong polarity ☐ (b) Unsteady hand ☐
 (c) Work piece dirty ☐ (d) Excess of voltage ☐
88. What is the name of the defect occurring to an unsteady hand in GMAW?
 (a) Over fusion ☐ (b) Burn through ☐
 (c) Distortion ☐ (d) Waviness of bead ☐

89. What is the full form of GTAW ?
 (a) Groove tungsten arc welding ☐ (b) Grip tungsten arc welding ☐
 (c) Gas tungsten arc welding ☐ (d) Galvanised tungsten arc welding ☐
90. Gas Metal Arc Welding (GMAW) is economical over Shielded Metal Arc Welding (SMAW) due to
 (a) Less edge preparation ☐ (b) More complex ☐
 (c) Less portable ☐ (d) Deposition rate is less ☐
91. What is the purpose of inspection in welding ?
 (a) Determine faults and quality weld ☐ (b) Determine the material ☐
 (c) Determine the welded metal ☐ (d) Determine the electrode fusibility ☐
92. Which type of test is generally not used on the final product?
 (a) Non-destructive test ☐ (b) Semi Destructive test ☐
 (c) Destructive test ☐ (d) Non destructive and semi destructive ☐
93. How many types of common non destructive test are there ?
 (a) 2 types ☐ (b) 3 types ☐
 (c) 4 types ☐ (d) 5 types ☐
94. What types of test is visual inspection test ?
 (a) Non-destructive test ☐ (b) Destructive test ☐
 (c) Non-destructive and destructive ☐ (d) Performance test ☐
95. How many stages are there in visual inspection in NDT ?
 (a) Two stage ☐ (b) Three stage ☐
 (c) Four stage ☐ (d) Five stage ☐
96. What is the NDT method using sound as a source ?
 (a) Visual inspection ☐ (b) Pressure test ☐
 (c) Stethoscopic test ☐ (d) Magnetic particle test ☐
97. What is the test in which the weld quality is tested without destroying the job ?
 (a) Destructive test ☐ (b) Non-Destructive test ☐
 (c) Semi - Destructive test ☐ (d) Visual inspection test ☐
98. Which is a non destructive test ?
 (a) Without damaging the job ☐ (b) With damaging and with distrat ☐
 (c) Nick break test ☐ (d) Free bend test ☐
99. What are the costs involved in welding job ?
 (a) Electrode, power, labour ☐ (b) Material and machining ☐
 (c) Material and preparation ☐ (d) Proportion cost and works cost ☐
100. Which type of test is not generally not used on the final product ?
 (a) Non - destructive test ☐ (b) Semi - destructive test ☐
 (c) Destructive test ☐ (d) Non-destructive & Semi-destructive test ☐

---ooOoo---