

GME – Plumbing and Welding
Technology

T098

Wednesday, 18/11/2015

08:30 – 11:30

WORKFORCE DEVELOPMENT AUTHORITY



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**ADVANCED LEVEL NATIONAL EXAMINATIONS, 2015,
TECHNICAL AND PROFESSIONAL TRADES**

EXAM TITLE: Plumbing and Welding Technology

OPTION: General Mechanics (GME)

DURATION: 3hours

INSTRUCTIONS:

The paper is composed of **three (3) Sections:**

Section **I:** Fifteen (**15**) questions, all **Compulsory.** **55marks**

Section **II:** Five (5) questions, **Choose Three (3) only.** **30marks**

Section **III:** Three (3) questions, **Choose only One (1).** **15marks**

Every candidate is required to strictly obey the above instructions. Punishment measures will be applied to anyone who ignores these instructions.

Section I. Fifteen (15) Compulsory questions. 55marks

01. List any Four (4) metals used in the plumbing. **2marks**
02. With help of sketches, differentiate elbows from Tee fittings used in plumbing. **5marks**
03. Give two (2) advantages of a shower compared with the bath. **4marks**
04. Name the various systems used for ground drainage. **3marks**
05. Give two (2) purposes of the septic tank. **4marks**
06. List four (4) criteria to be considered when choosing the fixings. **4marks**
07. Name the five (5) types of hand and machine tools used in plumbing activities. **5marks**
08. What are the welding joints suitable for the following job:
 a) Joining two members aligned approximately in the same plane.
 b) Joining two overlapping members. **2marks**
09. What are welding positions to be used to make groove welds on the plate? **4marks**
10. State any four (4) causes of Backfire. **4marks**
11. Which devices are used to prevent Backfire and Flashbacks? **2marks**
12. State four (4) necessities of an arc welding machine used in SMAW. **6marks**
13. Name four (4) Functions of flux used in welding. **4marks**
14. Name two (2) types of filler metals commonly used in welding and two (2) factors to be considered during the selection of the filler metal. **4marks**
15. State any four (4) gases used in gas welding as fuel gases. **2marks**

Section II. Answer any three (3) questions of your choice

(Do not choose more than three questions). 30marks

16. (a) What are the drawbacks of heating too little and heating too much the pipe in the heat bending operation?
- (b) State where these pipes are used:
 i) Mil steel pipes. ii) Copper pipes. iii) Plastic pipes. **10marks**
17. (a) Water closet pans may be divided into two (2) categories; state and explain them.
- (b) Mild steel tube is of three grades identified by different colors near the end of the pipe. Complete the table below with corresponding color and use for each grade.

S/N	Grade	Color code	Use
i	Heavy	?	?
ii	Medium	?	?
iii	Light	?	?

10marks

18. (a) Explain the principle of an arc produced in Shielded Manual Metal Arc Welding.
(b) Name Four (4) limitations of Shielded Manual Metal Arc Welding (SMAW). **10marks**
19. (a) Name seven (7) steps for welding with Oxy-Acetylene flame to be used in oxy-acetylene gas welding work.
(b) State any three (3) gap clearance dependence in brazing. **10marks**
20. (a) List five (5) limitations and five (5) applications of Gas welding.
(b) Give four (4) advantages of the forward technique and four (4) disadvantages of backward technique used in Oxy-acetylene gas welding process.
(c) Why is it essential to remove the flux after brazing? **10marks**

Section III. Answer any one (1) question of your choice

(Do not choose more than one question). 15marks

21. (a) State the procedure followed to cut steel pipes by using a pipe cutter.
(b) Explain how siphonage can be Water Closet solution and problem in Plumbing system. **15marks**
22. Briefly distinguish Oxygen-cylinder from the Dissolved Acetylene gas cylinder. **15marks**
23. (a) State and explain two types of polarity used in SMAW (Shielded metal arc welding).
(b) In four (4) ways, differentiate the brazing and soldering processes.
(c) Enumerate the five (5) Oxy-Acetylene Gas cutting equipments. **15marks**

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