

**GME – Plumbing and Welding  
Technology**

**T080**

**Wednesday, 28/11/2018**

**08:30 – 11:30 AM**

WORKFORCE DEVELOPMENT AUTHORITY



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**ADVANCED LEVEL NATIONAL EXAMINATIONS, 2018,  
TECHNICAL AND PROFESSIONAL STUDIES**

**EXAM TITLE: PLUMBING AND WELDING TECHNOLOGY**

**OPTION: General Mechanics (GME)**

**DURATION: 3 hours**

**INSTRUCTIONS:**

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

**Section I: Fifteen (15) compulsory questions. 55 marks**

**Section II: Attempt any three (3) out of five questions. 30 marks**

**Section III: Attempt any one (1) out of three questions. 15 marks**

**Note:**

***Every candidate is required to carefully comply with the above instructions. Penalty measures will be applied on their strict consideration.***

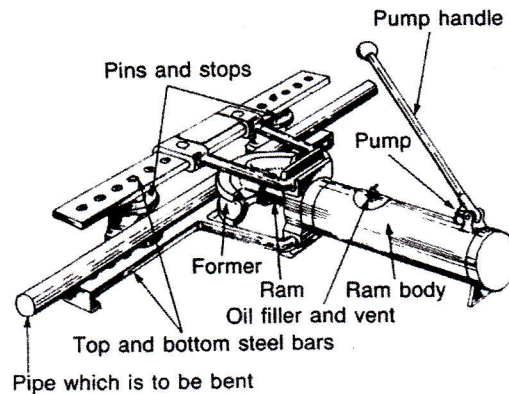
**Section I. Fifteen (15) Compulsory questions****55 marks**

01. What is a pipe? **(3 marks)**
02. Enumerate four uses of steel pipes in plumbing. **(4 marks)**
03. Give Two physical and Two chemical properties of water. **(4 marks)**
04. What is the difference between a cap and a plug fittings used in plumbing? **(4 marks)**
05. Name Three measuring tools used in plumbing. **(3 marks)**
06. List any Four metals commonly used in the plumbing tube. **(4 marks)**
07. List any Four factors which may be considered in selection of pipes. *types of thread* **(4 marks)**
08. State any Four advantages and Four disadvantages of welding. **(4 marks)**
09. Give any Four safety regulations when using regulator in Oxy-acetylene gas welding. **(2 marks)**
10. State and explain the main types of welds. **(3 marks)**
- ✓ 11. Name Four causes of Back fire occurring in Oxy-acetylene gas welding. **(4 marks)**
12. Name Two types of filler metals commonly used in welding and Two factors to be consider during the selection of the filler metal. **(4 marks)**
13. Describe the following welding process and their applications:
- a) MIG (Metal Inert Gas welding process). *consumable*
- b) TIG (Tungsten Inert Gas welding process). *non consumable* **(4 marks)**
- ✓ 14. What are the welding joints suitable for the following job:
- a) Joining two members aligned approximately in the same plane. *edge joint/BW*
- b) Joining two overlapping members. *lap joint* **(4 marks)**
- ✓ 15. State Four necessity of an arc welding machine used in SMAW. **(4 marks)**

**Section II. Choose and Answer any three (3) questions**

**30 marks**

16. Describe the copper pipes types and tubes also provide their identifications and their use. **(10 marks)**
17. With help of sketch of a single stack system of above ground drainage for a large house; state and explain the main design requirements. **(10 marks)**
18. The given figure shows a Hydraulic press bender pipe bending machine used for bending steel pipes purpose. It is required to bend a steel pipe of 30mm diameter at 90° degrees. State the procedures to follow step by step in order to complete this task by using this machine. **(10 marks)**



19. (a) State the method of charging Dissolved Acetylene cylinder.  
(b) Give Four applications of Oxy-Methane gas flame. **(10 marks)**
20. (a) Explain briefly the process of brazing.  
(b) Give two characteristics and one application of the carburizing flame used in oxy-acetylene gas welding. **(10 marks)**

**Section III. Choose and Answer any one (1) question**

**15 marks**

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- 21.** From your choice, state and explain one of the most used method for cutting metal pipe for residential plumbing application. **(15 marks)**
- 22.** With a neat sketch state and explain the components of Oxy-acetylene gas welding. **(15 marks)**
- 23.** State and explain Two types of polarity used in SMAW. **(15 marks)**