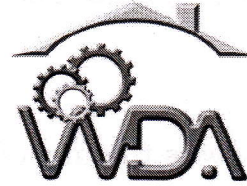


**GME - Plumbing and Welding
Technology**

T077

**Wednesday, 06/11/2013
8:30 - 11:30 AM**

WORKFORCE DEVELOPMENT AUTHORITY



P.O.BOX 2707 Kigali, Rwanda Tel: (+250) 255113365

**ADVANCED LEVEL NATIONAL EXAMINATIONS, 2013,
TECHNICAL AND PROFESSIONAL TRADES**

EXAM TITLE: Plumbing and Welding Technology

OPTION: General Mechanics (GME)

DURATION: 3hours

INSTRUCTIONS:

The paper Contains three (3) Sections:

Section I: sixteen (16) questions, **all Compulsory.** **55marks**

Section II: five (5) questions, **Choose any three (3).** **30marks**

Section III: three (3) questions, **Choose any one (1).** **15marks**

Section I: Answer all the questions.**55marks**

01. Name any six (6) materials from which steel pipes and plumbing tools are made of. **3marks**
02. The hacksaw is the most important cutting tool for sawing metal to the required size. Which are procedures recommended during sawing metals? **4marks**
03. List any two (2) types of copper pipe. **2marks**
04. Name any four (4) methods used for fixing in plumbing. **4marks**
05. State and explain any two (2) types of water treatment. *embedding* **4marks**
06. Differentiate direct cold water from indirect cold water system. **2marks**
07. Differentiate sanitary one- pipe system from two- pipe system. **4marks**
08. Briefly define the term welding. *plus plus* **2marks**
09. State and explain any five (5) metal joining methods. *distin* **5marks**
10. Differentiate fusion welding from pressure welding. **4marks**
11. (a) What does shielded metal arc welding (SMAW) mean? **2marks**
- (b) List any four (4) equipments necessary for Shielded metal arc welding (SMAW). **2marks**
12. Give any four (4) factors affecting electrode selection in SMAW work. **2marks**
13. Complete the following table. **2marks**

S/N	SMAW electrode size (mm)	Current range (Amps)
a)	2.6	-
b)	-	160 - 220

14. (a) List any four (4) functions of Oxy-Acetylene flame. **2marks**
- (b) There are three (3) different types of Oxy-Acetylene flame that can be produced in Oxy-Acetylene Gas welding. Name and give the applications of each. **3marks**

15. Name and explain two (2) methods used to produce Acetylene gas in the workshops. **4marks**
16. State and explain two (2) types of welding blow pipes. **4marks**

Section II: Answer three (3) questions of your choice. 30marks

17. a) Explain heat bending procedure applicable in steel pipe bending. **5marks**
b) Describe step by step the process of working out the heat length for 90° bend on a piece of 25mm radius of steel pipe. **5marks**
18. a) Sanitary appliances can be classified into two categories. Name the categories and give at least two types of sanitary appliance included in each category. **6marks**
b) State and explain at least four (4) types of pipe fittings. **4marks**
19. a) Give and explain five (5) basic types of joints used in welding. **5marks**
b) Name and explain four (4) basic welding positions. **4marks**
c) State two Disadvantages of Brazing welding methods. **1mark**
20. With the help of necessary sketches, name and explain two techniques used in Oxy-acetylene gas welding process and state where they are applicable. **10marks**
21. a) Differentiate between Back fire and Flash back. *Connect* **4marks**
b) State which one between back fire and flash back is very dangerous, hence state three (3) indications of it and two (2) immediate steps to follow when it occurs. *largely to safety* **6marks**



Section III: Answer only one question of your choice. 15marks

22. a) Briefly explain the siphonage method used in plumbing. **7marks**

b) (i) Explain two causes of Back flow of water in plumbing,

(ii) Give two methods used to prevent it

(iii) Name any two back flow prevention devices. **8marks**

23. State and explain any three types of defects that may occur in Shielded metal arc welding (SMAW) work, give any two causes and remedies for each defect. **15marks**

24. a) Name five (5) procedures for lighting the Torch and five (5) procedures for shutting off the torch to be applicable in oxy-acetylene gas welding work. **10marks**

b) State and explain various methods used to produce oxygen gas O₂. **5marks**

