ADVANCED LEVEL NATIONAL EXAMINATIONS, 2014
TECHNICAL AND PROFESSIONAL TRADES

EXAM TITLE: Plumbing and Welding Technology

OPTION: General Mechanics (GME)

DURATION: 3 hours

INSTRUCTIONS:

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

Section I: Fourteen (14) questions, all Compulsory. 55 marks

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

Section III: Three (3) questions, Choose any One (1). 15 marks
SECTION I. FOURTEEN (14) COMPULSORY QUESTIONS.

01. List the factors that should be considered when laying an underground service pipe. 5marks

02. Explain how cold water system flow noises can be minimized when installing system pipe work. 4marks

03. What is the name of the pipe used for the water supply inside the building? 2marks

04. Illustrate by sketch a slow sand filter process. 2marks

05. Name four (4) types of joints used for PVC pipes. 4marks

06. Where and when does the water seal remains in the trop? 2marks

07. State any four (4) uses of mild steel pipes. 4marks

08. What are the common principles or characteristics of all sanitary pipe work? 5marks

09. Differentiate the forward technique and rightward technique for gas welding process. Illustrate your answer by sketch. 4marks

10. What is the purpose of regulator? 4marks

11. State and explain any three (3) types of urinals. 3marks

12. Give two (2) physical and two (2) chemical properties of water. 4marks

13. List any five (5) safety regulations when using regulator. 5marks

14. Explain the function of flux coating of welding electrode. 5marks

SECTION II. CHOOSE AND ANSWER ANY THREE (3) QUESTIONS.

15. Discuss two (2) different joints used to connect copper pipes to fittings. 10marks

16. Draw a sketch of the manual metal arc welding process, naming the following components: (1) Welding power source; (2) Welding cable; (3) Return cable and champ (4) Electrode holder; (5) Electrode (6) Electric ark work and earthed connection. 10marks

17. Describe five (5) basic types of joints used in welding. 10marks

18. a) Explain heat bending procedure applicable in steel pipe bending.
   b) Describe step by step the process of working out the heat length for 900 bend on a piece of 25mm radius of steel pipe. 10marks

19. (a) State the method of charging Dissolved Acetylene cylinder.
    (b) Discuss any four (4) welder tests positions for pipe. 10marks

SECTION III. CHOOSE AND ANSWER ANY ONE (1) QUESTION.

20. With a neat sketch of hydraulic press bender, state and explain the procedure to follow step by step to bend a steel pipe of 25mm diameter at 90 degrees. 15marks

21. 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

22. Discuss any type of defects that may occurs in Shielded metal arc welding (SMAW) work, give any two (2) causes and remedies for each defect. 15marks