MACHAKOS UNIVERSITY

University Examinations 2016/2017

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL AND MANUFACTURING ENGINEERING

SECOND YEAR SECOND SEMESTER EXAMINATION FOR DIPLOMA IN MECHANICAL ENGINEERING (PRODUCTION OPTION)

MED - PR 211: WORKSHOP PROCESSES AND PRACTICE IV

DATE: 6/6/2017 **TIME: 2:00 – 4:00 PM**

INSTRUCTIONS

Answer Question One and Any Other Two Questions

1. a) Identify six job hazards associated with welding (6 marks)

   b) Highlight the following equipment in oxy-acetylene gas welding

      i. The oxygen and acetylene hose pipes

      ii. Gases used

      iii. Gas pressure Regulators

      iv. Flashback arrestor

      v. Welding torch/Welding nozzle

      vi. Filler rods and fluxes (12 marks)

   c) With the aid of a diagram explain the principle of manual metal arc welding (12 marks)

2. a) Illustrate the three types of oxy-acetylene gas welding flames and state their respective uses. (9 marks)

   b) Describe the stepwise procedure of brazing. (7 marks)

   c) State four differences between soldering and brazing (4 marks)

3. Describe the Step by step procedure for lighting an oxy-acetylene flame (20 marks)

4. a) Explain the following terms as applied to soldering
   i. Flux
   ii. Solder (4 marks)

   b) Differentiate between soft and hard soldering (6 marks)

   c) Describe step by step general procedure for soldering. (10 marks)

5. a) Explain the brazing principle. (5 marks)

   b) State three advantages and two disadvantages of brazing (5 marks)

   c) i Illustrate any two bead wave techniques used in welding (2 marks)

   ii Illustrate the four types of welding positions. (8 marks)