



MACHAKOS UNIVERSITY

University Examinations 2017/2018

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL AND MANUFACTURING ENGINEERING

SECOND YEAR SECOND SEMESTER EXAMINATION FOR DIPLOMA IN MECHANICAL ENGINEERING

MED-PR 211: WORKSHOP PROCESSES AND PRACTICE IV

DATE: 6/12/2017

TIME: 8:30 – 10:30 AM

INSTRUCTIONS

This paper consists of *FIVE* questions

Answer question *ONE* (compulsory) and any other *TWO* questions

1.
 - a) Describe the **two** gas welding techniques (8 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 Welding nozzle
 - v Filler rods (10 marks)
 - c) With the aid of a diagram explain the principle of manual metal arc welding (10 marks)
 - d) Define the term Arc length. (2 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. a) Explain the following terms as applied to soldering
- i Flux (4 marks)
- ii Solder (6 marks)
- b) Differentiate between soft and hard soldering (10 marks)
- c) Describe step by step general procedure for soldering. (6 marks)
4. a) Discuss the **two** types of fluxes used in soft soldering. (4 marks)
- b) State **four** advantages and **four** disadvantages of brazing (2 marks)
- c) i Explain the term tinning in soft soldering (8 marks)
- ii Illustrate the four types of welding positions. (6 marks)
5. a) Describe the Step by step procedure for lighting an oxy-acetylene flame (8 marks)
- b) Discuss the **two** classifications of electrodes used in arc welding. (6 marks)
- c) State any **six** precautions in arc welding