



MACHAKOS UNIVERSITY

University Examinations 2018/2019

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL AND MANUFACTURING ENGINEERING

SECOND YEAR SECOND SEMESTER EXAMINATION FOR

DIPLOMA IN MECHANICAL ENGINEERING

MEDPR 211: WORKSHOP PROCESSES AND PRACTICE IV

DATE: 10/5/2019

TIME: 8.30-10.30 AM

INSTRUCTIONS:

Answer Question One (Compulsory) and Any Other Two Questions

QUESTION ONE (30 MARKS)

- a) State **four** differences between soldering and brazing (8 marks)
- b) State any **six** precautions in arc welding (6 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)
- e) Describe the following terms as used in soldering;
 - i. Burnt iron, (2 marks)
 - ii. Sweating. (2 marks)

QUESTION TWO (20 MARKS)

- 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)

QUESTION THREE (20 MARKS)

- a) Illustrate the **three** types of oxy-acetylene gas welding flames and state their respective uses. (9 marks)
- b) Describe the following gas welding techniques using sketches;
 - i. Leftward (4 marks)
 - ii. Rightward (4 marks)
- c) Highlight three precautions necessary for a good soft soldered joint. (3 marks)

QUESTION FOUR (20 MARKS)

- a) Describe the Step by step procedure for lighting an oxy-acetylene flame (6 marks)
- b) Discuss the **two** classifications of electrodes used in arc welding. (4 marks)
- c) Using a sketch describe the principle of TIG welding. (6 marks)
- d) Highlight four advantages of MIG welding over manual metal arc welding. (4 marks)

QUESTION FIVE (20 MARKS)

- a) Discuss the **two** types of fluxes used in soft soldering. (6 marks)
- b) State **four** advantages of brazing (4 marks)
- c)
 - i Explain the term tinning in soft soldering (2 marks)
 - ii Illustrate the four types of welding positions. (8 marks)