



MACHAKOS UNIVERSITY
SCHOOL OF ENGINEERING AND TECHNOLOGY

**DEPARTMENT OF MECHANICAL & MANUFACTURING
ENGINEERING**
**SECOND YEAR SECOND SEMESTER EXAMINATION FOR DIPLOMA
IN MECHANICAL ENGINEERING**

MEDPR211 WORKSHOP PROCESSES AND PRACTICE IV

INSTRUCTIONS

TIME: 2 hours

This paper consists of two sections. Section A is compulsory, and then answer any other two questions from section B

SECTION A: COMPULSORY. (30 MARKS)

1. (a) State **four** differences between soldering and brazing (8 Mks)
- (b) State any **six** precautions in arc welding (6 Mks)
- (c) With the aid of a diagram explain the principle of manual metal arc welding (10Mks)
- (d) Define the term Arc length. (2Mks)
- (e) Describe the following terms as used in soldering;
 - i. Burnt iron, (2 Mks)
 - ii. Sweating. (2 Mks)

SECTION B: ANSWER ANY TWO QUESTIONS

2. (a) Explain the following terms as applied to soldering
 - (i) Flux (4Mks)
 - (ii) Solder (4Mks)
- (b) Differentiate between soft and hard soldering (6Mks)
- (c) Describe step by step general procedure for soldering. (10Mks)

3. (a) Illustrate the **three** types of oxy-acetylene gas welding flames and state their respective uses. (9 Mks)
- (b) Describe the following gas welding techniques using sketches;
- i. Leftward (4 Mks)
 - ii. Rightward (4Mks)
- (c) highlight three precautions necessary for a good soft soldered joint. (3Mks)
4. (a) Describe the Step by step procedure for lighting an oxy-acetylene flame (6Mks)
- (b) Discuss the **two** classifications of electrodes used in arc welding. (4Mks)
- (c) Using a sketch describe the principle of TIG welding. (6 Mks)
- (d) highlight four advantages of MIG welding over manual metal arc welding. (4 Mks)
5. (a) Discuss the **two** types of fluxes used in soft soldering. (6Mks)
- (b) State **four** advantages of brazing (4Mks)
- (c) (i) Explain the term tinning in soft soldering (2 Mks)
- (ii) Illustrate the four types of welding positions. (8 Mks)