



MACHAKOS UNIVERSITY

University Examinations for 2021/2022

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL ENGINEERING

FIRST YEAR FIRST SEMESTER EXAMINATION FOR

DIPLOMA IN MECHANICAL ENGINEERING

STRUCTURAL FABRICATION TECHNOLOGY 1

DATE: 26/11/2021

TIME: 2.30-5.30 PM

Instructions to candidates.

Answer All the questions.

1. (a) State Two examples of the use of sheet metal for each of the following areas:
 - (i) Domestic;
 - (ii) Industrial;
 - (iii) Ornamental. (6 marks)
- (b) Distinguish between sheet metal and plate. (4 marks)
- (c) State Four reasons that make copper plated ideal material for fabrication of electrical bus bars. (8 marks)
- (d) Define the term galvanized iron sheet. (2 marks)
2. (a) State Five safety precautions to be observed when handling sheet metal materials. (6 marks)
- (b) Sketch the following tools and state ONE application for each in sheet metal work:
 - (i) Folding bar;
 - (ii) Grooving tool;
 - (iii) Tinsnips. (9 marks)

- (c) Illustrate the use of each of the following hand tools:
 - (i) Odd-leg calipers;
 - (ii) Centre square. (5 marks)
- 3.
 - (a) Explain the term edge treatment in sheet metal work. (4 marks)
 - (b) Illustrate the following joints in sheet metal work:
 - (i) Lap joint;
 - (ii) Locked seam;
 - (iii) Grooved seam. (9 marks)
 - (c)
 - (i) Explain what is meant by a False wired edge with respect to sheet metal edge treatment.
 - (ii) Describe the procedure for making a wired edge in sheet metal work. (7 marks)
- 4.
 - (a) Draw a the adjustable hacksaw with the blade in position and label its parts. (8 marks)
 - (b) With the aid of a sketch, explain how the hacksaw is used to cut a long piece of sheet metal. (6 marks)
 - (c)
 - (i) Sketch a trammel and label the parts.
 - (ii) State the advantage of the trammel over the divider in with regard to marking out. (6 marks)
- 5.
 - (a) Explain Two operations involved in the pattern layout and development in sheet metal work. (6 marks)
 - (b) With the aid of sketches, describe the following methods of pattern layout in sheet metal work.
 - (i) Parallel line;
 - (ii) Triangulation. (14 marks)