



# MACHAKOS UNIVERSITY

University Examinations for 2020/2021

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL AND MANUFACTURING ENGINEERING

FIRST YEAR SECOND SEMESTER EXAMINATION FOR

DIPLOMA IN MECHANICAL ENGINEERING

WORKSHOP TECHNOLOGY AND PRACTICE

DATE: 30/8/2021

TIME: 8:30 – 10:30 AM

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## INSTRUCTIONS

*Attempt all questions*

1. (a) Name two metals used in sheet metal work stating one property of each that makes it applicable in sheet metal components. (4 marks)
- (b) Sketch the following sheet metal work tools stating their use.
  - (i) Mallet.
  - (ii) Scribe.
  - (iii) Folding rule. (9 marks)
- (c) Using sketches explain the following sheet metal operations;
  - (i) Planishing.
  - (ii) Sinking. (7 marks)
2. (a) (i) Define the term waste material as applied in production engineering. (2 marks)
- (ii) Name three methods employed in safe waste material disposal. (6 marks)

- (b) (i) Explain the term material handling in the workshop. (4 marks)  
(ii) Explain two factors to be considered when choosing material handling methods in the workshop. (8 marks)
3. (a) Make a neat sketch of a vernier micrometer and label four main parts. (8 marks)
- (b) Explain how the accuracy of 0.01mm of a micrometer is achieved. (6 marks)  
(c) Show a reading of 8.32mm on a vernier micrometer. (6 marks)
4. (a) Define finishing processes as applied in production engineering, stating its two main objectives. (5 marks)
- (b) Explain how the following finishing processes are carried out on metals;  
(i) Lacquering.  
(ii) Blackening.  
(iii) Bluing. (9 marks)
- (c) (i) Explain the importance of caring and maintenance of tools used in finishing processes. (2 marks)  
(ii) Explain two care and maintenance processes carried out on tools used in finishing processes. (4 marks)
5. (a) Using sketches illustrate the following seam joints used in sheet metal work.  
(i) Lock seam joint.  
(ii) Angular joint.  
(iii) Cleat Joint. (9 marks)
- (b) Define the term edge treatment in sheet metal work. (2 marks)
- (c) Using sketches explain the following edge treatment methods used in sheet metal work;  
(i) Wired edge.  
(ii) Double hem.  
(iii) Single hem. (9 marks)