



# MACHAKOS UNIVERSITY

University Examinations 2018/2019

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL AND MANUFACTURING ENGINEERING

FIRST YEAR SECOND SEMESTER EXAMINATION FOR

CERTIFICATE IN MECHANICAL ENGINEERING (TVET)

WORKSHOP TECHNOLOGY AND PRACTICE

DATE: 16/4/2019

TIME: 2.30-5.30 PM

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## INSTRUCTIONS:

*Answer all the questions*

### QUESTION ONE (20 MARKS)

- a) Briefly describe any five metals used in sheet metal work (10 marks)
- b) Differentiate between the following operations;
  - i. Measuring and marking
  - ii. Cutting and shearing (6 marks)
- c) Describe the pickling process (4 marks)

### QUESTION TWO (20 MARKS)

- a) Name at least six sheet metal machines (3 marks)
- b) With aid of neat sketches, differentiate between a single hem and a double hem in sheet metal joining (4 marks)
- c) Define the term laying out as used in sheet metal work (3 marks)
- d) describe the five electric hazards that can be experienced in the workplace (10 marks)

### QUESTION THREE (20 MARKS)

- a) Highlight any **Six** precautions to be observed in prevention of electric shock (6 marks)

- b) Differentiate the following by use of neat sketches;
- i) Dot punch
  - ii) Centre punch (4 marks)
- c) Highlight any twelve causes of accidents in workshops. (6 marks)
- d) Sketch and label a bench vice. (4 marks)

**QUESTION FOUR (20 MARKS)**

- a) Describe **three** classes of fires stating the extinguishing medium recommended for it. (6 marks)
- b) Describe any **five** toxic substances in a workshop. (5 marks)
- c) Explain the **four** safety colors' giving an example of where they can be used. (4 marks)
- d) Describe the hacksawing process (5 marks)

**QUESTION FIVE (20 MARKS)**

- a) sketch the following hand tools
- i) Divider
  - ii) Angle plate
  - iii) Hacksaw
  - iv) Cross pein hammer
  - v) Half round file (10 marks)
- b) Highlight the similarities between the hacksawing process and the filing (10 marks)