



# 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 VEHICLE TECHNOLOGY

WORKSHOP TECHNOLOGY

DATE: 16/4/2019

TIME: 2.30-5.30 PM

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**INSTRUCTIONS:**

*ATTEMPT ALL QUESTIONS*

**QUESTION ONE (20 MARKS)**

- a) Name four metals which can be used in sheet metal work and state two properties of each. (12 marks)
- b) List four machines used in sheet metal work and state their use. (8 marks)

**QUESTION TWO (20 MARKS)**

Explain the following sheet metal operations

- a) Bending
- b) Deep drawing
- c) Riveting
- d) Hollowing (20 marks)

**QUESTION THREE (20 MARKS)**

- a) List four properties and four applications of the following ferrous metals ;
  - i. Grey cast iron
  - ii. Stainless steel (16 marks)
- b) Differentiate between ferrous and nonferrous metals (4 marks)

**QUESTION FOUR (20 MARKS)**

- a) List four properties and four applications of the following non-ferrous metals;
- i. Aluminium
  - ii. Copper
- (16 marks)
- b) Explain two reasons why bronze is commonly used in shipping industry (4 marks)

**QUESTION FIVE (20 MARKS)**

- a) Explain the following mechanical properties of materials;
- i. Strength
  - ii. Stiffness
  - iii. Ductility
  - iv. Malleability
  - v. Hardness
- (10 marks)
- b) List and state the use of five commonly used tools in sheet metal work (10 marks)