



MACHAKOS UNIVERSITY

University Examinations for 2021/2022

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL ENGINEERING

FIRST YEAR FIRST TERM EXAMINATION FOR

DIPLOMA IN MECHANICAL ENGINEERING (PRODUCTION OPTION)

MODULE 1

2501/105/TR TOOLROOM PROCESSES THEORY AND PRACTICE 1

DATE:

TIME:

INSTRUCTIONS: ANSWER ALL QUESTIONS

Answer ALL the questions

1. (a) State three safety precautions to be observed under each of the following in a workplace workshop;
 - (i) Good house keeping;
 - (ii) Machinery;
 - (iii) Electricity;
 - (iv) Harmful substances;
 - (v) Hygiene; (15 marks)
- (b) Explain the measures observed in the event someone suffers electrocution. (5 marks)
2. (a) Illustrate for a work piece where;
 - (i) Datum edges;
 - (ii) Datum centre lines;
 - (iii) Datum edge and centre line. (9 marks)
- (b) Explain the two main purposes of marking out. (4 marks)

- (c) Illustrate each of the following in application
- (i) Engineer's square;
 - (i) Vee block. (8 marks)
3. (a) With the aid of a sketch explain the following types of files;
- (i) Hand file;
 - (ii) Three square file. (10 marks)
- (b) Illustrate the three types of taps and describe the process of tapping. (10 marks)
4. (a) Describe the principle of vernier scales and instruments which use them. (12 marks)
- (b) Explain any two advantages and two limitations for the following measuring tools;
- (i) Vernier calipers;
 - (ii) Internal micrometer screw gauge. (8 marks)
5. (a) With the aid of sketches describe the flat and cross cut chisel. (10 marks)
- (b) Sketch and label each of the following benchwork tools;
- (i) Ball Pein Hammer;
 - (ii) Hacksaw;
 - (iii) Scriber;
 - (iv) Steel rule. (10 marks)