



MACHAKOS UNIVERSITY

University Examinations for 2020/2021

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL ENGINEERING

FIRST YEAR FIRST TERM EXAMINATION FOR

DIPLOMA IN MECHANICAL ENGINEERING (PRODUCTION)

2501/105/TR: TOOLROOM PROCESSES THEORY AND PRACTICE 1

DATE: 30/8/2021

TIME: 8.30-11.30 AM

Instructions to Candidates

Answer ALL the questions

1. (a) State THREE safety precautions observed under each of the following in a workplace workshop;
 - (i) Drilling machine;
 - (ii) Toxic substances;
 - (iii) Electricity;
 - (iv) flammable substances;
 - (v) Hygiene; (15 marks)
- (b) Explain the procedure observed in the event someone suffers electric shock. (5 marks)
2. (a) Illustrate each of the following for a work piece where;
 - (i) Datum point;
 - (ii) Datum edges. (6 marks)
- (b) Sketch a reading of 25.76 for each of the following measuring instruments:
 - (i) vernier caliper;
 - (ii) micrometer.

(c) Explain each of the following faults in grinding. (6 marks)

(i) loading;

(ii) Glazing; (8 marks)

3. With the aid of sketches explain each of the following drilling operations:

a) Drilling;

b) Counterboring;

c) Countersinking;

d) Spot facing;

e) Tapping. (20 marks)

4. With the aid of sketches describe each of the following lathe machine operations;

a) Turning;

b) Facing;

c) Threading;

d) Boring.;

e) Parting-off. (20 marks)

5. (a) Explain FIVE constructional features of a milling machine. (10 marks)

(b) sketch and label each of the following benchwork tools;

(i) Cross Pein Hammer;

(ii) Mallet;

(iii) Hacksaw;

(iv) Hand file;

(v) Odd-leg caliper. (10 marks)