



MACHAKOS UNIVERSITY

University Examinations for 2020/2021

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL ENGINEERING

FIRST SEMESTER EXAMINATION FOR

CRAFT CERTIFICATE IN MECHANICAL ENGINEERING (AUTOMOTIVE)

MODULE I

1503/105/WT: WORKSHOP TECHNOLOGY

DATE: 3/9/2021

TIME: 8:30 – 11:30 AM

INSTRUCTIONS:

ATTEMPT ALL QUESTIONS.

- 1 (a) (I) Explain the meaning of the following terms used in measurement;
- I) Linear and non-linear scale
 - II) Tolerance
 - III) Limits
 - IV) Fits
- (II) Explain any **three** classes of errors in measurement. (7 marks)
- (b) (I) Illustrate a measurement of 10.02 cm on a Vernier calliper.
- (II) Sketch a Vernier calliper and label its seven main parts. (13 marks)
- 2 (a) List four criteria used to classify shapers (4 marks)
- (b) Explain three safety precautions associated with shapers (3 marks)
- (c) With an aid of a neat sketch, describe the shaper indicating the use of its principal parts (13 marks)
- 3 (a) State **three** precautions to be observed when using a micrometer screw gauge. (3 marks)
- (b) Illustrate a measurement of 12.13mm on a micrometer screw gauge. (6 marks)
- (c) Sketch a micrometer screw gauge and label seven main parts. (11 marks)
- 4 (a) Name and explain four operations performed on the drilling machine (6 marks)
- (b) Explain three safety precautions associated with drilling machines (3 marks)

- (c) With an aid of a neat sketch, describe a drilling machine indicating the use of its principal parts (13 marks)
- 5 (a) (I) List using neat sketches, four types of files
- (II) Explain two safety precautions when using a file (10 marks)
- (b) Outline the uses of five work holding devices employed in a centre – lathe operation (10 marks)