



# MACHAKOS UNIVERSITY

University Examinations 2017/2018

## SCHOOL OF ENGINEERING AND TECHNOLOGY

### DEPARTMENT OF MECHANICAL AND MANUFACTURING ENGINEERING

#### SECOND YEAR FIRST SEMESTER EXAMINATION FOR DIPLOMA IN MECHANICAL ENGINEERING

#### MED-PR 201: WORKSHOP PROCESSES & PRACTICE III

DATE: 18/12/2017

TIME: 8:30 – 10:30 AM

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#### INSTRUCTIONS

This paper consists of *FIVE* questions

Answer question *ONE* (compulsory) and any other *TWO* questions

You require drawing instruments for this examination.

1.
  - a) Explain FOUR specifications of the centre lathe (4 marks)
  - b) State THREE methods of checking the alignment of lathe centers (6 marks)
  - c) Outline six types of work that can be produced on a vertical milling machine (6 marks)
  - d) Describe the procedure for mounting the milling cutter for horizontal milling (10 marks)
  - e) State five reasons which make casting a preferred method of manufacturing (5 marks)
2.
  - a) With the aid of a sketch show the construction and parts of an indexing mechanism for simple indexing of milling operation (12 marks)
  - b) Describe the procedure for milling an hexagon whose distance across flat is 40mm on a 50mm diameter shaft. (8 marks)

3. a) Using sketches describe the following lathe operations
- i. Taper turning
  - ii. Boring
  - iii. Knurling
  - iv. Facing (12 marks)
- b) List four basic steps necessary in a sand mould making (4 marks)
- c) State FOUR disadvantages of casting processes (4 marks)
4. a) Explain how the following are achieved in the shaping machine
- i. Quick return mechanism
  - ii. Adjusting the length of the stroke (10 marks)
- b) State four safety precautions to be observed when working on a shaper (10 marks)
5. a) List FOUR methods of taper turning on the lathe (4 marks)
- b) Describe the following with regard to milling using sketches;
- i. Up cut milling
  - ii. Down cut milling (10 marks)
- c) Explain the following with regard to a center lathe
- i. head stock
  - ii. bed (6 marks)