



MACHAKOS UNIVERSITY COLLEGE

(A Constituent College of Kenyatta University)
University Examinations for 2015/2016

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL AND MANUFACTURING ENGINEERING

FIRST SEMESTER EXAMINATION FOR DIPLOMA IN MECHANICAL ENGINEERING

W/SHOP PROCESSES III

DATE: 11/8/2016

TIME: 2:00 – 4:00 pm

INSTRUCTIONS:

- THIS EXAMINATION CONTAINS TWO SECTIONS A AND B
- SECTION A IS COMPULSORY
- ATTEMPT ANY OTHER TWO QUESTIONS FROM SECTION B

SECTION A (COMPULSORY) - 30 MARKS

1.
 - a)
 - i) State and describe any five major parts of a lathe machine. (10 marks)
 - ii) State any five specifications which should be provided while ordering a lathe machine (5 marks)
 - b) Define the term feed and describe the three types of feed which a lathe tool may have. (8 marks)
 - c) Describe the following lathe machine operations
 - (i) Facing (2 marks)
 - (ii) Taper Turning (3 marks)
 - (iii) Reaming (2 marks)

SECTION B (ATTEMPT ANY TWO QUESTIONS FROM THIS SECTION)

2. a) Describe the following parts of a milling machine
- i) Base
 - ii) Saddle
 - iii) Arbor
 - iv) Spindle
 - v) Knee (10 marks)
- b) State any four common types of milling cutters (4 marks)
- c) Describe the following milling operations
- (i) Up milling (3 marks)
 - (ii) Down milling (3 marks)
3. a) Describe the following drilling operation
- i) Counter boring (3 marks)
 - ii) Counter sinking (3 marks)
 - iii) Spotfacing (3 marks)
- b) Describe the process of 'spotting' as applied in drilling. (4 marks)
- c) Describe the problems encountered when drilling holes in sheet metal and how they can be overcome. (4 marks)
- d) State any three safety precautions in the use of drilling machines. (3 marks)
4. a) i) Describe briefly pressure die casting process. (3 marks)
- ii) With the aid of a sketch describe cold chamber die casting (8 marks)
- b) List any two advantages and three limitations of die casting. (5 marks)
- c) List any four applications of die casting (4 marks)
5. a) State any three factors which may influence the occurrence of casting defects
- b) With the aid of sketches, describe the following casting defects giving two causes and two remedies for each
- i) Blow holes (4 marks)
 - ii) Inclusions (4 marks)
- c) Describe the following methods of inspecting casting
- i) Radiographic inspection
 - ii) Magnetic particle inspection
 - iii) Florescent penetrant (9 marks)