



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 206: PRODUCTION TECHNOLOGY I

DATE: 11/12/2017

TIME: 8.30-10.30 AM

INSTRUCTIONS

This paper consists of *FIVE* questions

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

SECTION A (COMPULSORY) - 30 MARKS.

1.
 - a) Describe briefly the metal cutting process (3 marks)
 - b) Describe the following types of chips.
 - i. Segmental chips (3 marks)
 - ii. Continuous chips (3 marks)
 - iii. Continuous chips with built up edge (4 marks)
 - c) With the aid of sketches describe the following methods of metal cutting
 - i. Orthogonal cutting (6 marks)
 - ii. Oblique cutting (6 marks)
 - d) State any **five** functions of cutting fluids in metal cutting operations (5 marks)

SECTION B (ATTEMPT ANY TWO QUESTIONS FROM THIS SECTION)

2. a) State any **four** properties of plastics (2 marks)
- b) Differentiate between thermoplastics and thermosetting plastics (3 marks)
- c) Describe the functions of the following additives to plastics
- i. Lubricants
 - ii. Flame retardants
 - iii. Plasticizers (6 marks)
- d) Describe the following plastics giving one property and one application for each
- i. Polyethylene (3 marks)
 - ii. Polytetrafluoroethylene (3 marks)
 - iii. Perspex (3 marks)
3. a) List the three stages which moulding processes of plastics undergo. (3 marks)
- b) With the aid of sketches explain the following methods of forming plastics
- i. Compression moulding (8 marks)
 - ii. Injection moulding (9 marks)
4. a) Define hot working process on metals (3 marks)
- b) Describe the following hot working processes with the aid of a sketch.
- i. Hot rolling (8 marks)
 - ii. Hot extrusion (9 marks)
5. a) Describe the following methods of hot forging
- i Drop forging (4 marks)
 - ii Press forging (4 marks)
- b) With the aid of a sketch differentiate between forward and backward extrusion. (8 marks)
- c) Describe wire drawing process. (4 marks)