



# MACHAKOS UNIVERSITY

University Examinations 2018/2019

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL AND MANUFACTURING ENGINEERING

THIRD YEAR SECOND SEMESTER EXAMINATION FOR

DIPLOMA IN MECHANICAL ENGINEERING (PRODUCTION OPTION)

MED – PR313: PRODUCTION TECHNOLOGY IV

DATE: 10/5/2019

TIME: 8.30-10.30 AM

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## INSTRUCTIONS:

**Answer Question One (Compulsory) and Any Other Two Questions**

### QUESTION ONE (30 MARKS)

- a) Define the following terms (12 marks)
- i. production
  - ii. Facilities
  - iii. Manufacturing support systems
  - iv. Automation
  - v. Plant layout
  - vi. Manufacturing systems
- b) Explain the three types of assembly systems (6 marks)
- c) Explain the line balancing problem (4 marks)
- d) State eight reasons for automation (8 marks)

### QUESTION TWO (20 MARKS)

- a) State five reasons against automation (5 marks)
- b) Explain the three basic types of automated manufacturing systems (15 marks)

### QUESTION THREE (20 MARKS)

- a) State any five devices and equipment required in Computer Integrated Manufacturing (5 marks)
- b) Define Flexible Manufacturing Systems (FMS) (3 marks)
- c) Write in full the following Computer-Aided Techniques (7 marks)
  - i. CAD
  - ii. CAE
  - iii. CAM
  - iv. CAPP
  - v. PPC
  - vi. CAQ
  - vii. ERP
- c) i Define computer integrated manufacturing (CIM) and explain where it is mostly used (3 marks)
- ii Explain two benefits of CIM? (2 marks)

### QUESTION FOUR (20 MARKS)

- a) i Define Flexible Manufacturing Systems (FMS) (3 marks)
- ii Outline FOUR elements and FIVE features of Flexible Manufacturing Systems (FMS) (5 marks)
- b) Explain the FOUR Manufacturing Support Systems (12 marks)

### QUESTION FIVE (20 MARKS)

- a) Explain any two basic types of Manufacturing Industries (4 marks)
- b) With the aid of diagrams explain the four types of plant layout (16 marks)