



MACHAKOS UNIVERSITY

University Examinations for 2019/2020 Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF MECHANICAL AND MANUFACTURING ENGINEERING

THIRD YEAR SECOND SEMESTER EXAMINATION FOR

DIPLOMA IN MECHANICAL ENGINEERING (PRODUCTION OPTION)

MED-PR 306: PRODUCTION TECHNOLOGY IV

DATE: 26/10/2020

TIME: 8.30-10.30 AM

INSTRUCTIONS

Answer Question One and Any Other Two Questions

QUESTION ONE (30 MARKS)

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

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
- d) i Define computer integrated manufacturing (CIM) and explain its application. (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 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)