



MACHAKOS UNIVERSITY

University Examinations for 2020/2021

SCHOOL OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING
SECOND YEAR SECOND TERM EXAMINATION FOR
CERTIFICATE IN ELECTRICAL ENGINEERING MODULE II
INDUSTRIAL MACHINE AND CONTROL

DATE: 2/9/2021

TIME: 8:30 – 11:30 AM

INSTRUCTIONS:

ANSWER ALL QUESTIONS

QUESTION ONE

- a) Define a PLC control. (4 marks)
- b) With the aid of diagram explain the major operation cycles of PLC. (5 marks)
- c) Highlight the major input and output devices of a PLC (6 marks)
- d) State any five areas of application of continuous duty cycle (5 marks)
- e) List any four methods used to determine motor ratings (5 marks)

QUESTION TWO

- a) Write in full RAM,ROM,EPROM, EEPROM and DRAM (5 marks)
- b) Explain the difference between DRAM and SRAM (5 marks)
- c) List the major PLC hardware components (5 marks)
- d) List any 3 advantages and disadvantages of PLC control. (5 marks)
- e) Explain the difference between RAM and ROM (5 marks)

QUESTION THREE

- a) Explain the following terms as applied to duty cycles
 - i) Continuous rating
 - ii) Intermittent
 - iii) Short time rating (6 marks)
- b) List seven factors to be considered when choosing a drive (7 marks)
- c) With the aid of diagrams, explain the following drives
 - i) Group
 - ii) individual
 - iii) multi drive (12 marks)

QUESTION FOUR

- a) Explain the need of motor enclosures and state types (8 marks)
- b) Draw and explain with a block diagram the parts of a PLC (12 marks)
- c) State any five areas of application of DC shunt motors (5 marks)