



MACHAKOS UNIVERSITY

University Examinations for 2020/2021 Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

SECOND YEAR SECOND TERM EXAMINATION FOR

CERTIFICATE IN ELECTRICAL AND ELECTRONICS ENGINEERING

1601/205/IM INDUSTRIAL MACHINE AND CONTROL

DATE: 8/6/2021

TIME: 8.30-11.30 AM

INSTRUCTIONS

ANSWER ALL QUESTIONS

QUESTION ONE

- a) Define a PLC control. (2 marks)
- b) State the major operation cycles of PLC. (4 marks)
- c) Highlight the major input and output devices of a PLC (6 marks)
- d) Explain any FOUR types of switches used in machine control (4 marks)
- e) Explain any THREE types of protective devices in machine control (4 marks)

QUESTION TWO

- a)
 - i Define a contactor system of control
 - ii State any Three components of contactors in industrial motor control (6 marks)
- b) With the aid of a diagram, explain the working of a contactor (6 marks)
- c)
 - i List the major components of a control panel
 - ii Enumerate the major steps of control panel design (8 marks)

QUESTION THREE

- a) Explain any three factors upon which contactors are classified. (6 marks)
- b) List any six steps during mounting of a given motor. (6 marks)
- c) Explain any FOUR types of enclosures for motors (8 marks)

QUESTION FOUR

- a) Explain the operation of the following contactors
 - i. Knife blade
 - ii. Manual
 - iii. magnetic (10 marks)
- b) Explain the difference between A.C and D.C contactors industrial machines control (10 marks)

QUESTION FIVE

- a) Explain briefly the difference between relay and contactor (8 marks)
- b) Explain the difference between jogging and plugging in industrial machine control (6 marks)
- c) Explain any Four areas of application of contactors (8 marks)