



MACHAKOS UNIVERSITY

University Examinations 2016/2017

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

SECOND YEAR FIRST SEMESTER DIPLOMA IN ELECTRICAL AND
ELECTRONICS ENGINEERING

SUPPLEMENTARY EXAMINATION

EED 203: ELECTRICAL INSTALLATION TECHNOLOGY III

DATE: 1/9/2017

TIME: 8:30 – 10:30 AM

INSTRUCTIONS:

Attempt all question ONE and other TWO questions

QUESTION ONE

- (a) (i) Define the term Fuse as used in protection (2 marks)
(ii) State **TWO** needs of protection in Electrical Circuits (2 marks)
- (b) (i) State any **TWO** advantages of rewirable fuse (2 marks)
(ii) With aid of a diagram describe the construction of rewirable fuse (4 marks)
- (c) Describe the following terms used in protection
(i) Fusing current
(ii) Fusing factor. (6 marks)
- (d) Explain the following terms with reference to refrigeration
(i) Refrigerant
(ii) Differential as applied to temperature control devices (4 marks)
- (e) (i) With aid of well labeled diagram describe the operation of Voltage operated earth leakage circuit breaker. (8 marks)
(ii) State any two applications of Voltage operated earth leakage circuit breaker. . (2 marks)

QUESTION TWO

- (a) (i) Define the term fire alarm system. (2 marks)
(ii) State **two** purposes of fire alarm system (2 marks)
- (b) Differentiate the following terms used in alarm systems, Open circuit and Closed circuit: (2 marks)
- (c) In (b) above and with the aid of a well labeled circuit diagram, describe the operation of Open circuit alarm systems. (8 marks)
- (d) With aid of well labeled diagrams, describe the following operation of the following bell indicators: (6 marks)
- (i) Pendulum
 - (ii) Mechanical replacement
 - (iii) Electrical replacement

QUESTION THREE

- (a) Define the following terms. (6 marks)
- (i) Refrigerating capacity
 - (ii) Ton
 - (iii) Coefficient of performance
- (b) (i) Distinguish between natural and forced conventions with reference to condensers
(ii) State the advantage of fin used in cooled condensers (4 marks)
- (c) With aid of a well labeled diagram, explain the operation of the compression cycle as used in refrigeration. (10 marks)

QUESTION FOUR

- (a) With aid of a well labeled diagram explain the functions of component parts of refrigeration system (12 marks)
- (b) You are given a domestic refrigerator in which
- (i) Water Build-Up in products
 - (ii) Some products are over-freezing and some are not
 - (iii) The refrigeration function cannot be turned on

There is no problem in the system. How would you trouble shoot the fault?

(8 marks)

QUESTION FIVE

- (c) State two possible causes of compressor unit burnout. (2 marks)
- (d) With aid of labeled diagram explain the functions of component parts of a room air conditioner. (12 marks)
- (e) You are given a domestic refrigerator in which the freezing compartment is too warm and the compressor is running continuously. There is no problem in the system. How would you find the fault? (6 marks)