



MACHAKOS UNIVERSITY

University Examinations for 2016/2017

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

SECOND YEAR FIRST SEMESTER EXAMINATION FOR DIPLOMA IN

ELECTRICAL AND ELECTRONICS ENGINEERING

EED 203: ELECTRICAL INSTALLATION TECHNOLOGY III

DATE: 5/6/2017

TIME: 2:00 – 4:00 PM

INSTRUCTIONS

Answer Question One and Any Other Two Questions

QUESTION ONE (COMPULSORY) (30 MARKS)

- (a) (i) Define the term ventilation system (2 marks)
(ii) State THREE functions of ventilation in an office set up (3 marks)
- (b) Differentiate between the following types of emergency lighting systems:- non maintained and maintained (2 marks)
- (c) In Question 1 b above and with aid of labeled diagram describe the maintained emergency lighting systems (7 marks)
- (d) Explain the following terms with reference to refrigeration
 - (i) Refrigerant
 - (ii) Differential as applied to temperature control devices (4 marks)
- (e) (i) Describe the term electrical enclosure. (2 marks)

- (f) (ii) State any **TWO** requirements to consider when deciding on the location of electrical rooms (2 marks)
- (g) (i) State any **TWO** properties of refrigerants used in vapor compression refrigerating systems. (2 marks)
- (ii) Describe the following refrigeration control systems:-
- I. Thermostat
- II. Starting Relays (6 marks)

QUESTION TWO (20 MARKS)

- (a) (i) Define the term fire alarm system. (2 marks)
- (ii) State two purposes of fire alarm system (2 marks)
- (b) Differentiate between 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 Closed circuit alarm systems. (8 marks)
- (d) With aid of well labeled diagrams, explain the operation of the following bell indicators:
- (i) Pendulum
- (ii) Mechanical replacement
- (iii) Electrical replacement (6 marks)

QUESTION THREE (20 MARKS)

- (a) Define the following terms.
- (i) Refrigerating capacity
- (ii) Ton
- (iii) Coefficient of performance (6 marks)
- (b) (i) Differentiate between the following types of cooling systems natural and forced conventions.
- (ii) State the advantage of fin used in cooled condensers (4 marks)
- (c) With aid of a well labeled diagram, describe the operation of the absorption refrigeration system. (10 marks)

QUESTION FOUR (20 MARKS)

- (a) State TWO functions of the following parts of vapor compression refrigeration system :-
(i) Strainer
(ii) Capillary tube (4 marks)
- (b) With aid of a schematic diagram, explain the functions of component parts of vapor compression refrigeration system (12 marks)
- (c) 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)

QUESTION FIVE (20 MARKS)

- (a) Define the term air conditioning (2 marks)
- (b) With aid of labeled schematic diagram, describe the functions of the following component parts of air conditioner.
(i) Compressor
(ii) Air filters
(iii) Condenser coil
(iv) Evaporator coil (12 marks)
- c) Describe the following ventilation systems
(i) Mechanical
(ii) Natural (6 marks)