

SCHOOL OF ENGINEERING AND TECHNOLOGY

ELECTRICAL AND ELECTRONICS ENGINEERING DEPARTMENT

SUPPLEMENTARY EXAMINATIONS, August 2016

Diploma in Electrical Engineering, year 1, Semester 2

Paper: Electrical Installation Technology

Unit code: EED 109

Instructions: Section A is compulsory

Answer any two in section B

TIME: 2hrs

SECTION A: COMPULSORY QUESTION

Q1. a) Explain the voltage levels as outlined in the Electric power (Electrical installation works) regulations 2006. (6marks)

b) With the aid of a diagram, explain a 3-phase, 4 wire distribution system showing all the voltage levels. (5mks)

c) Two lamps, rated at 240V, 60W and 240V, 100W respectively, are connected in parallel to a 240V supply. Calculate the total current drawn from the supply. **(5 Marks)**

(d) What would be the rating of the Third Lamp to be connected in parallel with the existing two lamps in (c) above to increase the current drawn from the supply to 1 Ampere? **(3 Marks)**

d) i) With the aid of a labeled wiring diagram, show the sequence of control equipment at the consumer's intake point for single phase supply. (7marks)

ii) State the IEE regulations governing the intake point. (3mks)

SECTION B: ANSWER ANY TWO

Q2. A) Define the following terms:

-Accessory

-Wiring system (4mks)

b) With the aid of a diagram, explain the term “Protective multiple earthing” (5marks)

d) What would be the rating of the Third Lamp to be connected in parallel with the existing two lamps in (c) above to increase the current drawn from the supply to 1 Ampere? **(2 Marks)**

e) A P.V.C insulated and sheathed twin cable is to be installed on surface to supply a 240V, 12Kw cooker 20 metres away from the main switch. If the cooker control unit incorporates a socket outlet, use table 3M provided to determine the minimum cable size for the installation, where excess current protection is provided. (9mks)

Q3) a) Define the following terms:

- i. Earth,
- ii. earthed,
- iii. earthed electrode,
- iv. earth continuity conductor,
- v. earthing lead (5mks)

b) Explain what live metal work is (2mks)

c) Highlight the main functions of earthing (3mks)

d) Explain the main earthing tests stating the instrument and reading expected (10mks)

Q4) a) Explain the purpose of testing and inspection (3mks)

b) State the sequence of testing and inspection as recommended in the IEE regulations (4mks)

c) With the aid of a circuit diagram, explain the operation of a current operated earth leakage circuit breakers (11mks)

d) State TWO IEE regulation requirements regarding the use of earth leakage circuit breakers (2mrks)

Q5.(a) With aid of a diagram, explain Radial and Ring final sub circuits (4mks)

(b) Explain any 8 players in kenyas energy sector (16marks)

END