



MACHAKOS UNIVERSITY

University Examinations 2016/2017

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

FIRST YEAR FIRST SEMESTER EXAMINATION FOR DIPLOMA IN

ELECTRICAL AND ELECTRONICS ENGINEERING

SUPPLEMENTARY EXAMINATION 1

EED 102: ELECTRICAL INSTALLATION TECHNOLOGY

DATE: 1/9/2017

TIME: 2:00 – 4:00 PM

INSTRUCTIONS:

Question ONE is Compulsory and answer any other TWO.

1. a) Whilst working on a site with others you hear a shout and to investigate you find someone lying on the ground, not moving nor apparently breathing, holding in his hand a flexible lead connected to a socket outlet.
 - i) List the correct order of steps to be taken. (3 marks)
 - ii) List five items of information which should be included in an incident report. (5 marks)
- b) Discuss the terms ignorance and carelessness as applied to safety precautions. (4 marks)
- c) Explain the procedure for carrying out an electric shock treatment using the “Kiss of life” method. (6 marks)
- d) State any four energy players in Kenya and explain briefly the roles played by each. (8 marks)

- e) Draw the BS 3939 electrical symbols for the following:
- Switched socket outlet
 - Intermediate switch
 - One way switch
 - Consumer control unit (4 marks)
2. a) State any **five** types of electrical joints. (5 marks)
- (b) State any three basic electrical and mechanical requirements on electrical conductor joints and the terminations. (3 marks)
- f) State any four energy regulations applied in Kenya. (4 marks)
- g) Draw a labeled circuit diagram showing how one lamp may be controlled from **Four** independent positions. (7 marks)
3. (a) With the aid of a well labeled diagram, explain the parts of an underground electric cable. (8 marks)
- b) Two cables are given as 19/1.53mm and 61/2.25mm, determine their cross-sectional areas. (4 marks)
- c) Explain any four insulating materials used in electrical engineering. (8 marks)
4. a) With the aid of a well labeled diagram, explain the 3 phase, 4 wire distribution system, showing all the voltage levels. (10 marks)
- b) With the aid of a well labeled wiring diagram, show the sequence of control equipment at the consumer's intake point for single phase supply. (7 marks)
- c) State any three IEE regulations governing the intake point. (3 marks)
5. (a) State Two reasons for stranded conductors of a cable (2 marks)
- (b) Draw a labeled cross section diagram of a three core paper insulated, lead sheathed steel wire armoured cable. (8 marks)
- (c) With the aid of labeled diagram, explain the D.C two wire distribution system (8 marks)
- (d) State two disadvantages of D.C distribution systems as compared to AC (2 marks)