



MACHAKOS UNIVERSITY

University Examinations 2017/2018

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING

FIRST YEAR FIRST SEMESTER EXAMINATION DIPLOMA IN ELECTRICAL ENGINEERING

EED 102: ELECTRICAL INSTALLATION 1

DATE: 20/12/2017

TIME: 8.30-10.30 AM

INSTRUCTIONS

Answer Question One and Any Other Two Questions

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.
 - ii) List five items of information which should be included in an incident report.

(8 marks)
- b) Discuss the terms ignorance and carelessness as applied to safety precautions.

(4 marks)
- c) Explain any five-electrical power generating stations.

(10 marks)
- d) State any four energy players in Kenya.

(4 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 the basic electrical and mechanical requirements on electrical conductor joints and the terminations. (3 marks)
 - (c) State any four energy regulations applied in Kenya. (4 marks)
 - (d) 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)
 - (a) Two cables are given as 19/1.53mm and 61/2.25mm, determine their cross-sectional areas. (4 marks)
 - (b) 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)
 - (e) State two disadvantages of D.C distribution systems as compared to AC (2 marks)