



COLLEGE: COLLEGE OF ENGINEERING, SCIENCE & TECHNOLOGY (CEST)

SCHOOL: SCHOOL OF ELECTRICAL & ELECTRONICS ENGINEERING

PROGRAMME: CERTIFICATE IV IN ELECTRICAL ENGINEERING - STAGE 3

UNIT CODE: EEE395

TITLE: ELECTRICAL INSTALLATION TECHNOLOGY A

FINAL EXAMINATION – PENSTER 4, 2013

ROOM: AS PER TIMETABLE

INSTRUCTIONS TO STUDENTS

1. You are allowed 10 minutes extra reading time during which you are NOT to write.
2. Begin each SECTION on a fresh page and use both sides of the sheet.
3. Write your candidate number at the top of each attached sheet.
4. Insert all written foolscaps, graph paper, drawing paper, etc. in their correct sequence and secure with a string.
5. For all sheets of paper on which rough/draft work has been done, cross it through and ATTACH these to your answer scripts.
6. Write clearly the number(s) of the question(s) attempted on the top of each sheet.
7. Use of programmable calculator(s) is prohibited.
8. **ANSWER ALL QUESTIONS**
9. Show all working where necessary.
10. **ALWAYS CHECK YOUR WORK BEFORE YOU LEAVE THE EXAM ROOM.**

SECTION A

(40 MARKS)

ANSWER all questions and also write down the appropriate rule numbers (Clause).

1. Outline the recommended locations for lamps located near flammable materials?
(4 marks)
2. Which three factors determine the location of switchboards?
(4 Marks)
3. What is the recommended voltage drop between the point of supply and at any point in a low voltage electrical installation?
(2 Marks)
4. Outline the factors that determine the selection of the method of electrical connections to be used between conductors and between conductors and other electrical equipment?
(6 Marks)
5. List three basic protection methods recommended against direct contact
(4 Marks)
6. What is the installation requirement for water heater isolating switch?
(4 Marks)
7. What forms of copper conductors shall be used for earthing installations?
(4 Marks)
8. What is the normal operating temperature of a V75 thermoplastic cable?
(3 Marks)
9. List the nominal size of copper earthing conductor recommended to be used with the following active conductors:
 - (a) Copper 6 mm²
 - (b) Copper 10 mm²(3 Marks)
10. Define the following electrical terms:
 - a) Hazardous area
 - b) Enclosure
 - c) Residual current device(6 Marks)

SECTION B**(60 MARKS)**

1. Outline the safety rules (5) regarding the use of scaffolds. (4 Marks)
2. Draw a neat block diagram explaining the generation, transmission, sub-transmission, distribution, sub-distribution and utilization. (8 Marks)
3. Name four methods of securing the supply in the event of power failures. (4 Marks)
4. List six (6) personal protective equipment (PPE) used in the electrical industries. (6 Marks)
5. Name three methods of earthing installations. (3 Marks)
6. Determine the maximum Demand current for a single phase 240V domestic supply connected with the following loads:
 - ❖ 18 lighting point
 - ❖ 4 x single 10A GPO's
 - ❖ 2 x double 10A GPO's
 - ❖ 2 x 15A socket outlet
 - ❖ 1 x 1KW range
 - ❖ 1 x 1 KW Air Conditioner(10 Marks)
7. List four (4) different types of Residual current device, their symbol and specific application. (8 Marks)
8. There are many features that determine the particular type of cable to be selected for much purpose, state four environment features that determine the type of cable to be used. (4 Marks)
9. Name five (5) different types of cables and also write down their specific application in electrical installations. (5 Marks)
10. List five (5) types of switchgears or circuit isolating devices commonly used in electrical installations. (5 Marks)
11. What are the three major reasons of earthing? (3 Marks)

THE END

