FNU FIJI NATIONAL UNIVERSITY

COLLEGE OF ENGINEERING, SCIENCE AND TECHNOLOGY

SCHOOL OF ELECTRICAL & ELECTRONIC ENGINEERING

CERTIFICATE IV IN ELECTRICAL ENGINEERING

STAGE 3

EEE 395- ELECTRICAL INSTALLATION TECHNOLOGY A

FINAL EXAMINATION – PENSTER 1 – 2013

DAY/DATE: TIME: 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 answer 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 you must attach all of them to your answer scripts.
6. Write clearly the number(s) of the question(s) attempted on the top of each sheet.
7. **S.A.A WIRING RULE BOOKS ARE ALLOWED**
8. **ANSWER ALL QUESTIONS.**

SECTION A (40 MARKS)

ANSWER ALL QUESTIONS AND ALSO WRITE DOWN THE APPROPRIATE RULE NUMBERS.

1. Name the two major types of risks that exist in any electrical installation if the requirements stated in the wiring rule book are not followed? (3 marks)

2. List three types of protective device that can be used for the protection against both overload and short-circuit currents? (4 Marks)

3. How should rigid conduit be bending to prevent damage to conductors? (2 Marks)

4. What measures are there to prevent danger due to faults between live parts of the electrical installation consisting conductors and transformers? (3 Marks)

5. List three reasons for having correct circuit connections of the active, neutral and earth conductors? (3 Marks)

6. Name six basic parts of the earthing system in an electrical installation. (3 Marks)

7. Outline the following voltage bands high voltage low voltage and extra low voltage. (6 Marks)

8. Outline two situations where the pin- type insulators shall not be used for supporting aerial conductors. (3 Marks)

9. Why is earth resistance test necessary for any installation? (3 Marks)

10. Define the following electrical terms:

    a) Consumers terminals
    b) Fuse
    c) M.E.N system
    d) Point of entry
    e) Sub-mains (10 Marks)

SECTION B **(60 MARKS)**

1. Outline the procedure in steps (5) of erecting ladders.. (4 Marks)

2. Draw a neat diagram to show the connections of a star to star connected three phase transformers? (5 Marks)

3. Name four methods of securing the supply in the event of power failures. (4 Marks)

4. Draw a single line diagram and identify the following;
   (a) Consumer Mains (MSB)
   (b) Sub- mains (DSB)
   (c) Sub-circuit (LOAD)

   (6 Marks)

5. Name three sources of extra low voltage supplies. (3 Marks)

6. Determine the maximum Demand current for a single phase 240v domestic supply connected with the following loads:

   - 43 lighting point
   - 4 x single 10A GPO's
   - 9 x double 10A GPO's
   - 2 X 15A socket outlet
   - 1 x 2KW range
   - 1 x 1 KW Air Conditioner

   (12 Marks)

7. How would you connect a three phase motor in:
   .Delta connection
   .Star connection

   (Show coil and terminal markings and show the current and voltage relationship for both system (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. Outline three factors that affect the level (severity) of electric shock on human body and explain each factor accordingly. (6 Marks)

10. List down five advantages of alternating current (A.C) over direct current (D.C). (5 Marks)

11. What are the three major reasons of earthing? (3 Marks)

########## **THE END** ##########