



**SCHOOL OF ELECTRICAL AND ELECTRONIC
ENGINEERING**

CERTIFICATE IV IN ELECTRICAL ENGINEERING – STAGE 4

EEE445-ELECTRICAL INSTALLATION TECHNOLOGY B

FINAL EXAMINATION PAPER – PENSTER 1 -2016

DAY/DATE: As per TT TIME: As per TT ROOM: As per TT
DURATION: 2 Hour 10mins

INSTRUCTIONS TO STUDENTS:

1. You are allowed 10 minutes extra reading time during which you are not allowed 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 answer sheet.
4. Insert all foolscaps, graph paper, drawing paper etc in their correct sequence and secure with string.
5. For all sheets of paper on which rough / draft work has been done, cross it through and you must attach to the answer booklet.
6. Write clearly the number(s) of the question(s) attempted on top of each sheet.
7. **AS/NZS 3000:2007 WIRING RULE BOOKS ARE ALLOWED**
8. **ATTEMPT ALL QUESTIONS**

SECTION A

(20 MARKS)

1. Which wiring system is best suited for densely populated areas? (2 Marks)
2. Explain the busway system of wiring. (2 Marks)
3. Outline the Track wiring system. (2 Marks)
4. What is trunking system of wiring? (2 Marks)
5. What do you understand by the term point of attachment? (2 Marks)
6. Explain Multiple Eathed Neutral System. (2 Marks)
7. Outline the three voltage bands, Extra low voltage ,low voltage and high voltage. (3 Marks)
8. List five extraneous conductive parts, parts not associated with electrical installation . (5 Marks)

SECTION B

(15 marks)

1. Briefly explain on what is renewable energy. (3 marks)
2. Why don't we use renewable energy all the time? (3 marks)
3. How do solar panel works. (2 marks)
4. State the principle of operation of the Hydro-Electric Plant. (3 marks)
5. Briefly explain the operating principle of biomass powered steam power plant that is utilized by FSC using bagasse (biomass). (4 marks)

SECTION C

(20 MARKS)

Answer the following questions by quoting the rule number and relevant content from the SAA wiring rule book.

1. Outline the precautions to be taken to protect aluminum cables from corrosion.

- (3 marks)
2. Should semi-enclosed rewirable fuses be installed in new installations?
(3 marks)
3. List three methods of installing category A underground wiring system.
(4 marks)
4. How should socket outlets be installed?
(2 marks)
5. Name three methods of installation not permitted for Mineral insulated metal sheathed cable.
(3 marks)
6. What are the three things any wiring system should avoid if it is to be used in a hazardous area?
(3 marks)
7. What type of cables should be used as supports of a catenary if it is installed out-of-doors?
(3 marks)

SECTION D

(50 MARKS)

1. A single 415 V domestic installation is connected with the following loads:

21 lighting points
12 socket outlets 10Amps
2 X 15Amps socket outlet
3 KW hotplates
4 KW Oven
3 Phase 10.96 KW water heater
3.6 KW Air Condition

Determine the:

- (a) Maximum demand current per phase for the installation.
(b) The three phases are to be balanced as close as possible.
(12 marks)
2. According to the SAA wiring rules a visual inspection shall be made when work on an electrical installation has been completed in order to verify that the work complies with the requirements. Make a list of six (6) different locations and provide two matters to be checked during visual inspection.
(12 marks)

3. The decision to employ a particular wiring system will depend upon many factors and the way they affect the installation. List six (6) factors to be considered when selecting a suitable wiring system? (6 marks)

4. List the procedure to follow in order to isolate the power supply to an installation or circuit for maintenance work if the installation consists of computers and other important office equipment. (7 marks)

5. Refer to various tables in the SAA rule book for the following:

- (i) One method of installation permitted for insulated cables (without sheath).
- (ii) Maximum limiting temperature of MIMS cables
- (iii) Minimum size of copper insulated flexible conductor.
- (iv) Minimum height above ground for bare live conductors over areas used by vehicles.
- (v) Maximum span allowable for insulated annealed copper used as aerial conductor.

(8 marks)

THE END

EQP RECEIPT CHECKLIST FORM


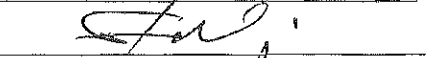
Particulars		Details/Comments (To be filled by Unit Lecturer)	Tick if present on EQP (To be filled by exams staff)
Cover Page		✓	
Fiji National University with Logo		✓	
College		✓	
School		✓	
Program		✓	
Unit Code		✓	
Unit Name		✓	
Examination Period		Apr to Per 99.	
Duration of Examination		✓	
Instructions		✓	
Total Number of Pages		✓	
Other Pages			
Footer	Page Number	✓	
	Unit Code	✓	
	Examination Period	✓	
Last Page			
The End		✓	
Overall			
Proper Print		✓	
Examination Requirements (FNU/E-1)		✓	
Moderator's Report (FNU/E-3)			
ERRS (Class List)			
Unit Coordinator/Principal Lecturer's Name		Syrcalla Jul.	

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