



**FACULTY OF ENGINEERING**  
**END OF SEMESTER EXAMINATIONS - APRIL 2025**

**PROGRAMME: DIPLOMA IN ELECTRICAL AND CONTROL ENGINEERING**

**YEAR/SEM: YEAR 1/SEMESTER 2**

**COURSE CODE: DEE1204**

**NAME: ELECTRICAL INSTALLATION OF BUILDING**

**DATE: 2025-04-25**

**TIME: 2:00-5:00PM**

**INSTRUCTIONS TO CANDIDATES:**

1. Read the instructions very carefully
2. The time allowed for this examination is STRICTLY three hours
3. Read each question carefully before you attempt and allocate your time equally between all the Sections
4. Write clearly and legibly. Illegible handwriting cannot be marked
5. Number the questions you have attempted
6. Use of appropriate workplace examples to illustrate your answers will earn you bonus marks
7. Any examination malpractice detected will lead to automatic disqualification.

**DO NOT WRITE ANYTHING ON THE QUESTION PAPER**

## Section A Answer any 2 Questions

### Question 1:

- a. What are the common hazards in electrical installations? (5 Marks)
- b. Why is it important to use PPE in electrical workshops? (10 Marks)
- c. Why is it important to calculate the correct cable size? (5 Marks)

### Question 2:

- a. What are the key characteristics of a good cable? (5 Marks)
- b. What is the role of earthing in electrical installations? (5 Marks)
- c. How do you protect final circuits from overload? (5 Marks)
- d. What is the importance of cable management in an installation? (5 Marks)

### Question 3:

- a. What are the key regulations to follow when installing electrical systems in a building? (5 Marks)
- b. How can electrical fires be prevented in a building? (5 Marks)
- c. What are the steps to follow if someone is electrocuted in the workplace? (10 Marks)

### Question 4:

- a. What is the function of a substation in the electricity supply system? (5 Marks)
- b. What are the main advantages of using smart grids over traditional grids? (10 Marks)
- c. What challenges do power transmission systems face in remote areas? (5 Marks)

## Section B Answer any 3 questions

### Question 1:

- a. Explain the role of overcurrent protection devices in electrical installations. Discuss the types of overcurrent protection devices available. (10 Marks)
- b. Explain the importance of earthing in electrical systems. How would you test the effectiveness of an earthing system in a domestic building? (10 Marks)

### Question 2:

- a. What is the difference between a fuse and a circuit breaker? (10 Marks)
- b. How does a Residual Current Device (RCD) work? (10 Marks)

### Question 3:

- a. Why are earth leakage protection devices important? (5 Marks)
- b. What is the primary function of overcurrent protection? (5 Marks)
- c. When would a fuse be preferred over a circuit breaker? Why is soil resistivity testing important for earthing systems? (10 Marks)

### Question 4:

- a. What is the role of a substation in electricity supply? (5 Marks)

- b. What are the different methods of electricity utilization? (10 Marks)
- c. Why is renewable energy becoming more important in electricity generation? (5 Marks)