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**University Examinations 2014/2015**

SECOND YEAR, SECOND SEMESTER EXAMINATION FOR DIPLOMA IN ELECTRICAL ENGINEERING

**EEE 0231: ELECTRICAL MEASUREMENT AND TESTING III**

**DATE: DECEMBER 2014 TIME: 1**$\frac{1}{2}$ **HOURS**

**INSTRUCTIONS:** *Answer questions* ***on****e**and any other* ***two*** *questions from section B*

**SECTION A**

**QUESTION ONE (30 MARKS)**

1. Preventive maintenance is classified into three types. Outline these three types

(3 marks)

1. Testing is done to eliminate any ‘bugs’ in a system. State at least two bugs found in a system (2 marks)
2. Define the following terms
3. Calibration (2 marks)
4. Unavailability
5. Distinguish between the MTBF and MTTF (2 marks)
6. Explain briefly with aid of a graph, three sections of reliability curve (6 marks)
7. Outline three main effects of high temperatures on an equipment that makes reliability to reduce (3 marks)
8. Explain briefly what the testable design is (3 marks)
9. Define the following terms : Maintainability and performance specification

(4 marks)

1. Explain the standard specification and give two examples (3 marks)

**SECTION B**

**QUESTION TWO**

1. Define the term the failure rate (2 marks)
2. Explain briefly three factors affecting equipment reliability (6 marks)
3. List and explain what is contained in the test specification (7 marks)

**QUESTION THREE**

1. Outline and explain three major difference between a prototype and a production design (6 marks)
2. In a system the average time to repair any fault is 2hrs. Calculate the value of maintainability for a time of 4hrs (3 marks)
3. State and explain briefly three strategies used in ATE (6 marks)

**QUESTION FOUR**

1. Define the terms below in relation to calibration (4 marks)
2. Special calibration
3. Independent calibration
4. State the main purpose of tests (2 marks)
5. Explain briefly what the testability is (3 marks)
6. Explain the term availability and explain three factors affecting MTTR (6 marks)