



# MACHAKOS UNIVERSITY

University Examinations 2017/2018

## SCHOOL OF ENGINEERING AND TECHNOLOGY

### DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING

### SECOND YEAR SECOND SEMESTER EXAMINATION DIPLOMA IN ELECTRICAL ENGINEERING

#### EED 213: ELECTRICAL MEASUREMENT AND TESTING III

DATE: 20/12/2017

TIME: 8.30-10.30 AM

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#### INSTRUCTIONS

**Answer Question One And Any Other Two Questions**

#### QUESTION ONE (COMPULSORY)

- (a) Defferentiate between quality assurance,quality control and testing. (3 marks)
- (b) Give three advantages and three disadvantages of prototyping model (6 marks)
- (c) Give three reasons why testing in production is nessesary (3 marks)
- (d) Explain five types of testing as used in production (10 marks)
- (e) Explain the following terms
  - i. Reliability
  - ii. Failure
  - iii. Mean time to failure (MTTF)
  - iv. Mean time between failure (8 marks)

#### QUESTION TWO (20 MARKS)

With an aid of a diagram,explain prototyping model showing all stages involved as well as the activities involved in each stage. (20 marks)

**QUESTION THREE (20 MARKS)**

- (a) Using the BATHTUB diagram, explain the three periods of failure of a product. (10 marks)
- (b) Explain five factors affecting equipment reliability (10 marks)

**QUESTION FOUR (20 MARKS)**

- (a) Define reliability (2 marks)
- (b) Failure of products may be defined depending on four factors. Name them (8 marks)
- (c) 200 transistors were operated over 100hrs. Five of them failed .calculate the failure rate (FR) (10 marks)

**QUESTION FIVE (20 MARKS)**

Using a three in one graph of cost against reliability, describe the three relationships of the costs of a given product. (20 marks)