



MACHAKOS UNIVERSITY

University Examinations for 2018/2019

**SCHOOL OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
SECOND YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR
DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING**

EED 114: ELECTRICAL MEASUREMENTS AND TESTING 1

DATE:

TIME:

INSTRUCTIONS

Answer Question One and Any Other Two Questions

QUESTION ONE (COMPULSORY) (30 MARKS)

- a) Explain briefly a measurement system (3 marks)
- b) What is a transducer (2 marks)
- c) With an aid of labeled diagrams, explain the operation of any transducer applied in the Electronic Industry (5 marks)
- d) Describe THREE classes of operation of an Amplifier (12 marks)
- e) How are LEDs and photo Diodes applied in communication Engineering (8 marks)

QUESTION TWO (20 MARKS)

- a) Explain the following components
 - (i) Diode
 - (ii) Capacitor

- (iii) Inductor
- (iv) Optic fibre
- (v) LED

- b) In any THREE components /devices in Q2 (a) give two application (6 marks)
- c) With an aid of a diagram explain briefly a single – stage transformer (4 marks)

QUESTION THREE (20 MARKS)

- a) Explain briefly an Elettret microphone (4 marks)
- b) What is biasing in Electrical Electronics Circuits (2 marks)
- c) With an aid of labeled diagrams , explain the working of a carbon microphone (10 marks)
- d) Modern Telecommunication networks use fibre optic Technology . Explain briefly the process of operation (4 marks)

QUESTION FOUR (20 MARKS)

- a) What is a feedback circuit (2 marks)
- b) With an aid of labelled diagram, explain an Oscillator Circuit? (8 marks)
- c) State any FOUR requirements of Oscillator circuits (6 marks)
- d) Explain a tuned Amplifier Circuit (2 marks)

QUESTION FIVE (20 MARKS)

- a) What is a transducer? (3 marks)
- b) Name any TWO Transducers (2 marks)
- c) With an aid of a construction diagram explain a moving – microphone (10 marks)
- d) Explain the following
 - i) Amplitude
 - ii) Frequency
 - iii) Periodic Time
 - iv) Wave length
 - v) Angular velocity (5 marks)