



MACHAKOS UNIVERSITY COLLEGE

(A Constituent College of Kenyatta University)
University Examinations for 2015/2016 Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

SECOND SEMESTER EXAMINATION FOR
DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING

DIPLOMA IN MECHANICAL ENGINEERING

DIPLOMA IN AUTOMOTIVE ENGINEERING

EED 114: ELECTRICAL MEASUREMENTS AND TESTING

DATE: 5/8/2016

TIME: 2:00 – 4:00 PM

INSTRUCTIONS

- Question 1 compulsory
- Answer any other two questions
- Neat work required.

QUESTION ONE (30 MARKS)

- a) Define the following terms/ components applied in electronic industry:-
- i) Power diode
 - ii) LED
 - iii) Photo Diode
 - iv) Photo transistor
 - v) LED array (10 marks)
- b)
- i) Explain briefly extrinsic semi-conductor devices (3 marks)
 - ii) Differentiate P-type and N-type atomic structure (4 marks)

- c) With aid of labeled diagram explain both half-wave , rectifier circuits. (8 marks)
- d) Show a circuit diagram of cascaded Transistors which leads to design of an Amplifier. (5 marks)

QUESTION TWO

Describe the classes of amplifier operations (20 marks)

QUESTION THREE

- a) Give two reasons why feedback is applied in Amplifiers. (4 marks)
- b) A photo transistor is a light sensor which is a transducer. Explain how a light signal can be displayed in a screen (8 marks)
- c) State four applications of an optic fiber cable (4 marks)
- d) Explain the operation of a Moving-coil microphone (4 marks)

QUESTION FOUR

- a) Explain the working of a linear variable differential transformer (LVDT) showing the vector diagram utilized. (10 marks)
- b) With aid of block diagram explain a super hete dyne radio receiver. (10 marks)

QUESTION FIVE

- a) A receiver having an intermediate frequency of 465KHZ is tuned to a frequency range 500 KHZ to 1500 KHZ. If the frequency of the local oscillator is higher frequency, find the tunable frequencies. (5 marks)
- b) Give an expression for image frequency (3 marks)
- c) A super heterodyne radio receiver has a intermediate of 465KHZ and is tuned to 1065 KHZ. Calculate:-
- i) The local oscillator frequency
 - ii) The image signal frequency (8 marks)
- d) Explain co channel interference applied in receivers. (4 marks)