(Knowledge for Development)

KIBABII UNIVERSITY
(KIBU)

UNIVERSITY EXAMINATIONS

2022/2023 ACADEMIC YEAR

SPECIAL/SUPPLEMENTARY EXAMINATION

YEAR ONE SEMESTER ONE EXAMINATION

FOR THE DEGREE

(INFORMATION TECHNOLOGY)

COURSE CODE : BIT 115

COURSE TITLE : BASIC ELECTRONICS

DATE: 03/08/2023 **TIME: 2.00 PM. – 4.00 PM.**

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTIONS ONE AND ANY OTHER TWO.

QUESTION ONE (COMPULSORY) [30 MARKS]

(a) List any two active and two passive devices [4 marks]

(b) Given a 10 Micro farad capacitor, 1000 resistor and 8 henries inductor . Determine

(i) Parallel impedance [2 marks]

(ii) Series impedance and [2 marks]

(iii) The resonant frequency for (i) and (ii) above [2 marks]

(c) Explain any two characteristics of a conductor, semiconductor and resistor. [6 marks]

(a) Discuss classification bipolar and Unipolar amplifiers [6 marks]

(b) State any three advantage of bridge rectifier [3 marks]

(c) Explain optical fibre communication is achieved [4 marks]

QUESTION TWO [20 MARKS]

(a) Explain formation of PN junction [4 marks]

(b) With aid of circuit diagram of centre tapped transformer rectifier and associated wave forms explain it's operation [12 marks]

(c) For (b) above Determine [4 marks]

(I) Ripple factor

(II) Efficiency

QUESTION THREE [20 MARKS]

With aid of circuit diagram, derive the transfer function of of the following OPAM circuit

(a) Inverting amplifier [4 marks]

(b) Non Inverting amplifier [4 marks]

(c) Summer [4 marks]

(d) Integrator [4 marks]

(e) Diferentiator [4 marks]

QUESTION FOUR [20 MARKS]

Determine the efficiency of the following type of transistor amplifiers

(a) Class A [6 marks]

(b) Class B [6 marks]

(c) Class c [7 marks]

QUESTION FIVE [20 MARKS]

(a) Draw the response of amplify and explain its shape [6 marks]

(b) Determine the transfer function of amplify with feedback. [6 marks]

(c) With aid of diagram and waveforms explain the operation of collector tuned oscillator [8 marks]