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UNIVERSITY REGULARY EXAMINATIONS

2ND SEMESTER 2012 /2013 ACADEMIC YEAR

FOR THE DEGREE OF

BACHELOR OF SCIENCE (COMPUTER SCIENCE)

COURSE CODE: CSC 220

COURSE TITLE: ELECTRONICS

DATE: 26th August, 2013 **TIME:** 9.00a.m – Noon

INSTRUCTIONS TO CANDIDATES:

Answer Question One and any other two questions from the following Five Questions

QUESTION ONE (30 MARKS)

(a) Distinguish the following as applied to Electronics
   (i) Semiconductors and Insulator
   (ii) Conduction Band and Valence band
   (iii) BJT and FET
   (iv) Donor and acceptor
   (v) Extrinsic and Intrinsic Semiconductor (10 marks)

(b) Explain the formation of P type and N-type semiconductors (6 marks)

(c) With aid of diagrams explain the transistor action (5 marks)

(d) Show that gain of amplifier with feedback = $Ai/(1+\beta Ai)$ (5 marks)

(e) Derive the DC load line equation for transistor amplifier (4 marks)

QUESTION TWO (20 MARKS)

(a) With aid of circuit diagram explain the function of component of Transistor amplifier

(b) Draw a two stage common emitter circuit (5 marks)

(c) Draw the h –parameter equivalent circuit for two stage (5 marks)

QUESTION THREE (20 MARKS)

(a) Define the h-Parameter for any two port network. Hence or otherwise determine

(b) Current Amplification

(c) Voltage amplification

(d) Power amplification

QUESTION FOUR (20MARKS)

For each of the following amplifier classification determine their maximum efficiency

(a) Class A (6 marks)

(b) Class B (6 marks)

(c) Class C (7 marks)

QUESTION FIVE (20 MARKS)

With aid of diagrams explain the principle of operation of the following types of diodes

(a) PN diode (4 marks)

(b) Zener diode (6 marks)

(c) Thyristor (10 marks)