



ELIZADE UNIVERSITY, ILARA-MOKIN, ONDO STATE
FACULTY OF ENGINEERING
DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

SEMESTER I EXAMINATION, 2016/2017 ACADEMIC SESSION

COURSE TITLE: PHYSICAL ELECTRONICS

COURSE CODE: EEE 319

EXAMINATION DATE: 27th March, 2017

COURSE LECTURER: DR. S. AINA

A handwritten signature in black ink, appearing to be 'S. Aina', written over a horizontal line.

HOD's SIGNATURE

TIME ALLOWED: 1 HR, 30 MINS

INSTRUCTIONS:

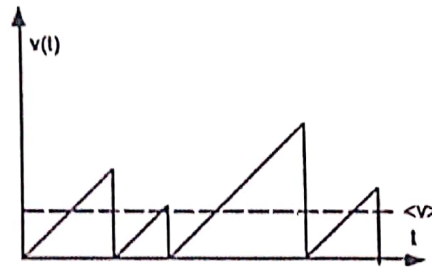
1. ANSWER FOUR (4) QUESTIONS ONLY
2. SEVERE PENALTIES APPLY FOR MISCONDUCT, CHEATING, POSSESSION OF UNAUTHORIZED MATERIALS DURING EXAM.
3. YOU ARE NOT ALLOWED TO BORROW CALCULATORS AND ANY OTHER WRITING MATERIALS DURING THE EXAMINATION.

Question #1

- a) Describe the properties of the elementary particles contained in atoms that make up matter. (5 marks)
- b) Define electric current. (5 marks)
- c) Explain the Drude Theory of conduction. (5 marks)

Question #2

- a) With the aid of a simple mathematical formula and defined variables, define the magnitude of an electric field. (5 marks)
- b) With the aid of a simple mathematical formula and defined variables, define the force of an electric field. (5 marks)
- c) Explain the following graph showing the velocity for a charge carrier as a function of time. (5 marks)



Question #3

- a) What is thermal equilibrium? (5 marks)
- b) Define Carrier Drift. (5 marks)
- c) Define Carrier Diffusion. (5 marks)

Question #4

- a) What is the purpose/relevance of Carrier Drift and Carrier Diffusion mechanisms? (5 marks)
- b) Describe, with the aid of an example that includes the schematic representation, the operations of a Diode. (5 marks)
- c) With the aid of their schematic representations, differentiate between the operations of a Resistor and that of a Transistor. (5 marks)

Question #5

- a) Draw the Model of a Conductor. (5 marks)
- b) What is the mathematical representation of the velocity of a particle with no initial velocity increasing with time? (5 marks)
- c) Briefly discuss the importance of Physical Electronics in the study of Electrical and Electronics Engineering. (5 marks)