ELIZADE UNIVERSITY, ILARA-MOKIN, ONDO STATE

FACULTY OF ENGINEERING

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

FIRST SEMESTER EXAMINATION, 2017/2018 ACADEMIC SESSION

COURSE TITLE: COMPUTER ORGANISATION AND ARCHITECTURE

COURSE CODE: ECE511

EXAMINATION DATE:

COURSE LECTURER: DR. A. O. OLUWATOPE

HOD's SIGNATURE

TIME ALLOWED: 3 HOURS

INSTRUCTIONS:

1. ANSWER FIVE QUESTIONS ONLY
2. SEVERE PENALTIES APPLY FOR MISCONDUCT, CHEATING, POSSESSION OF UNAUTHORIZED MATERIALS DURING EXAM.
3. YOU ARE **NOT** ALLOWED TO BORROW ANY WRITING MATERIALS DURING THE EXAMINATION.

Question #1

a. What is an instruction set?
b. What are categories of instructions
c. Describe the architecture of the R8000 microprocessor

Question #2

a. Describe the categories of operations the ARM processor architecture supports
b. Describe the functions of a control unit.
c. Describe the layers of abstraction of a computer system

Question #3

a. Discuss the four main functions of a computer
b. Describe the main structural components of a CPU
c. What is computer architecture?

Question #4

a. Describe in detail the model of a control unit of computer
b. Describe the model of control unit with decoded inputs

Question #5

a. Describe the model of a micropgrammed control unit
b. Differentiate between the vertical and horizontal microinstructions
c. What are the functions of the a micro-program counter(μPC)?

Question #6

a. Describe the three-bus organisation of the CPU architecture
b. List the hardware and software design techniques appropriate for performance enhancement of a computer system.
c. What is computer organisation

Question #7

a. Design a 3-bit look-ahead adder
b. Analyse the delay in a carry look-ahead adder
c. What are the types of control signals typical in a CPU?