



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

SEMESTER I EXAMINATION, 2016/2017 ACADEMIC SESSION

COURSE TITLE: MICROPROCESSOR SYSTEM AND INTERFACING CONTROL SYSTEM

COURSE CODE: ECE 411

EXAMINATION DATE: 28<sup>th</sup> MARCH, 2017

COURSE LECTURER: DR. S. AINA

A rectangular box containing a handwritten signature in black ink, which appears to be 'S. Aina'.

HOD's SIGNATURE

TIME ALLOWED: 2 HRS

**INSTRUCTIONS:**

1. ANSWER QUESTION 1 AND ANY OTHER TWO QUESTIONS (TOTAL OF 3 QUESTIONS)
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.

1)

- a) Differentiate between the Program Counter and the Stack Pointer of a typical microprocessor. (5 marks)
- b) State the indicative condition that each of the following five flags of the status register represents; 'zero', 'sign', 'parity', 'carry', 'auxiliary carry'. (5 marks)
- c) List and explain four forms in which Read-Only Memory (ROM) can exist. (8 marks)
- d) Draw the packet format of a simple machine instruction. (2 marks)

2)

- a) Differentiate between the terms 'Machine Instruction' and 'Instruction Set'. (5 marks)
- b) State the four categories and corresponding functions into which instruction types can be categorized. (8 marks)
- c) Draw the instruction cycle state diagram. (5 marks)
- d) Draw the block diagram showing the architecture of a microprocessor. (2 marks)

3)

- a) List four Opcodes and their corresponding operations. (4 marks)
- b) Distinguish between an assembler and a compiler, including the *cross* and *resident* variants of each one. (6 marks)
- c) Distinguish between assembly, high-level and machine languages. (6 marks)
- d) Define integrated circuits and briefly discuss their evolutions. (4 marks)

4)

- a) Using one address instructions, write the instructions that could be used to compute:  
$$Y = (A - B) \div [C + (D \times E)].$$
 (8 marks)
- b) Discuss Moore's Law. (3 marks)
- c) State and highlight the differences between the two semiconductor technologies. (5 marks)
- d) State two addressing techniques with the aid of block diagrams. (4 marks)