NATIONAL OPEN UNIVERSITY OF NIGERIA
PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI - ABUJA
FACULTY OF SCIENCE
OCTOBER/NOVEMBER 2016 EXAMINATION

COURSE CODE: **CIT411**
COURSE TITLE: **MICROCOMPUERS AND MICROPROCESSORS**
CREDIT UNITS: **2**
TIME ALLOTED: **2 HOURS**
INSTRUCTION: ***Answer Question 1 and any other three.***

1.
   a. Distinguish between a microcomputer and a microprocessor.
   b. Write a brief note on each of the following:
      i. VLSI technology
      ii. RISC processor
      iii. ALU
   c. Distinguish between **Von Neumann** and **Harvard** architectures. (25 marks)

2.
   a. For a microprocessor briefly describe the following features:
      i. Word-size
      ii. Processing speed
      iii. Instruction set
      iv. Memory
   b. Distinguish between **independent I/O** and **memory-mapped I/O.** (15 marks)

3.
   a. Distinguish between **machine language** and **assembly language**.
   b. Write a brief note on each of the following:
      i. Assembler directive
      ii. Subroutine
      iii. Instruction (15 marks)

4.
   a. Briefly describe what **Direct Memory Access** (DMA) is.
   b. Distinguish between **Instruction Set Architecture** and **Microarchitecture**. (15 marks)

5.
   a. Write brief notes on the following:
      i. Accumulator
      ii. Program counter
      iii. Stack pointer
   b. Write down the full interpretation of the following instructions:
      i. MOV R2, #80h
      ii. POP 90h
      iii. ADD A, #25h
      iv. INC R7 (15 marks)

c. Briefly describe what an **interrupt** is, and explain what happens when it is triggered.
d. Write brief notes on the following:
    i. Opcode
    ii. Operand
    iii. Address Bus
    iv. Data Bus (15 marks)