



**NATIONAL OPEN UNIVERSITY OF NIGERIA
91 CADASTRAL ZONE, NNAMDI AZIKWE EXPRESSWAY, JABI, ABUJA
FACULTY OF SCIENCES
DEPARTMENT OF COMPUTER SCIENCE**

2022_2 Examination

COURSE CODE: CIT411

COURSE TITLE: MICROCOMPUTERS AND MICROPROCESSORS

CREDIT: 2 Units

TIME ALLOWED: 2 Hours

INSTRUCTION: Answer Question ONE (1) and any other THREE (3) Questions.

Question 1

- a. Assume that x86 microprocessors' Registers R1, R2, and R3 have the values 0FFh, 0Feh, and 0EDh respectively. Calculate the results of the following operations. (5 marks)

SN	OPERATION	RESULT
i	ADD R1, #1	
ii	INC R3	
iii	PUSH R1	
iv	DEC R2	
v.	SUB R2, #1	

- b. Compare Immediate and Register addressing mode of 8085 microprocessor. (5 marks)
- c. Assess the application of microprocessors in Embedded Controllers? (5 marks)
- d. Arrange the functions of Flags in 8085 microprocessors (7marks)
- e. Compare Direct and Indirect addressing modes of 8085 microprocessor (8 marks)

Question 2

- a. Compare x64 with x86 microprocessor (5marks)
- b. Examine the microcomputer and microcontroller. (5marks)
- c. Compare integer and real data types employed in microprocessors (5 marks)
- d. Describe the Arithmetic Logic Unit (ALU) of 8085 microprocessor (5 marks)

Question 3

- 3a. Examine the fields in the coprocessor instruction. (2 marks)
- b. Identify four (4) microprocessor interface components. (4 marks)
- c. Contrast the hardware Characteristics of Reduced Instruction Set Computer (RISC) with Complex Instruction Set Computer (CISC). (6 marks)
- d. State and analyze the format of assembly language instruction (8 marks)

Question 4

- 4a. Assess the performance of Dual-core and Quad-core processors. (5 marks)
- b. Explain the functions of the Architecture of the Harvard microcomputer (5marks)
- c. Discuss four (4) technological innovations of microprocessors. (5marks)
- d. Describe a coprocessor? (5 marks)

Question 5

- 5a. Examine the Registers in 8085 microprocessors (5 marks)
- b. Appraise the application of microprocessors in Digital Signal Processing (7 marks)
- c. Compare Problem Analysis and Design stages in developing an efficient program (8 marks)