



**NATIONAL OPEN UNIVERSITY OF NIGERIA**  
University Village, Plot 91, Cadastral Zone,  
Nnamdi Azikiwe Expressway, Jabi, Abuja

**FACULTY OF SCIENCES**  
**APRIL, 2019 EXAMINATIONS**

**Course Code:** CIT411  
**Course Title:** Microcomputers and Microprocessors  
**Course Credit:** Unit: 2  
**Time Allowed:** 2 Hours  
**Instruction:** Answer Question 1 and any other three questions

**Question 1**

- (a) Outline any four types of interrupts – (6 marks)
- (b) Explain briefly the three types of a typical 80x86 processor - (7.5 marks)
- (c) Outline the actions performed by the microcontroller when an interrupt is triggered? - (5 marks)
- (d) How does Harvard architecture differ from Von Neumann architecture? - (4 marks)
- (e) What is a port? - (2.5 marks)

**Question 2**

- (a) Write an assembly program code each for an input and output operation - (12 marks)
- (b) In what way is the assembly language beneficial – (3 marks)

**Question 3**

- (a) Briefly discuss the technological innovations of microprocessors - (8 marks)
- (b) What is co-processor trap? How is co-processor instruction different from CPU instruction? - (5 marks)
- (c) What is a microcomputer? - (2 marks)

**Question 4**

- (a) Enumerate any five different types of applications for microcontrollers and microprocessors? - (10 marks)
- (b) Enumerate any four benefits of assembly language (5 marks)

**Question 5**

- (a) From the historical development of the microprocessors, mention the examples of microprocessors from leading corporations - (3 marks)
- (b) Briefly explain the subcategories of computer architecture. – (9 marks)
- (c) Outline the data manipulation operations of the microprocessor - (3 marks)