



**NATIONAL OPEN UNIVERSITY OF NIGERIA,  
PLOT 91, CADASTRAL ZONE, UNIVERSITY VILLAGE, JABI – ABUJA  
FACULTY OF SCIENCES  
DEPARTMENT OF COMPUTER SCIENCE  
OCTOBER 2019 EXAMINATION**

**CIT 411: MICROCOMPUTERS AND MICROPROCESSORS**

**TIME ALLOWED: 2HOURS**

**CREDIT UNIT: 2 UNITS**

**INSTRUCTION(S): ANSWER QUESTION 1 AND ANY OTHER THREE (3) QUESTIONS**

- 1a.) Specify the hardware features of the **CISC** within the context of Microcomputers and Microprocessors. **(4mks)**
- b.) Describe the concept of instruction and interpret its relationship with instruction set **(3mks)**
- c.) Mention the 8085 flags **(3mks)**
- d.) Examine the main features of 8085 microprocessors **(6mks)**
- e.) Determine examples of devices that can be used as i) servers and ii) clients **(4 mks)**
- f.) Describe the concept of flag? State the various uses of flags in microprocessors? **(5mks)**
- 2a) With two examples each, illustrate the classes of 8085 instruction set based on word size. **(7½ mks)**
- 2b) i. What is an Interrupt?  
ii. Detect the likely causes of program crashes when interrupts routines are used? **}7½mk**
- 3a.) Deduce the actions taken by microcontroller when an Interrupts is triggered **(5mks)**
- b.) Describe the various types of computer ports and itemize their functions **(6mks)**
- c.) i. What is Direct Memory Access? **) 2 mks**  
ii. Mention any four (4) devices that make use of DMA **) 2 mks**
- 4a.) Illustrate the effect of the following assembly language instructions:  
i) ORL D, 91h  
ii) MOV D, 86h  
iii) ANL C, 90h **) 2 x 5 = 10 marks**  
ii) CPL 20h  
v)) SETB 25h
- b.) Demonstrate using a well labelled diagram, the Harvard architecture **(5mks)**
- 5a.) Provide the classes of instructions vis-à-vis their respective functions **(5mks)**
- b) Determine the main sub-categories of Computer architecture **(7mks)**
- c.) State the reasons why **DMA** is required, outlining how it works **(3mks)**