MACHAKOS UNIVERSITY

University Examination for 2019/2020

SCHOOL OF ENGINEERING AND INFORMATION TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

SECOND YEAR SECOND SEMESTER

SCO 209: MICROPROCESSOR AND ASSEMBLY LANGUAGE PROGRAMMING

SEMESTER: JANUARY-APRIL

INSTRUCTION TO CANDIDATES

- SECTION A IS COMPULSORY

-ANSWER ANY TWO QUESTIONS IN SECTION B.

SECTION A (ALL QUESTIONS ARE COMPULSORY)

a) Define the following. **(10 Marks)**

i. Pipelining
ii. Decoding
iii. Instruction format
iv. Execution time.
v. Microprocessor

b) Fred was asked to describe the steps involved in a fetch cycle by Erick. Describe the discussion that they had about the cycle. **(10 Marks)**

c) Write a program to add two-BCD numbers where starting address is **2000** and the numbers is stored at **2500** and **2501** memory addresses and store sum into **2502** and carry into **2503** memory address. **(10 Marks)**

SECTION B (ANSWER ANY TWO QUESTIONS)

QUESTION 1

a) Diana decided to study the types of buses in 8085 Microprocessor. Discuss in detail the various types of buses you think she might have come across. **(10 Marks)**

b) What is your opinion and understanding of the Hlt and Hold States, additionally talk about the maskable interrupts and Non-maskable interrupts. **(10 Marks)**

QUESTION 2

a) By use of a suitable diagram explain in detail the different types of the flags in the register format of 8085 microprocessor. **(10 Marks)**

b) Discuss how Stack is implemented in 8085 Microprocessor and write short notes to distinguish between SIM and RIM instructions. **(10 Marks)**

QUESTION 3

a) You are asked to give a discussion on 8085 Microprocessor registers. Discuss in detail the main registers that you will consider in your presentation and why. **(10 Marks)**

b) Write an assembly language program to add 10 data bytes. Data is stored in memory location starting from 4460H. The result is 8 bits only and is stored in 4480H. **(10 Marks)**

QUESTION 4

a) While discussing more general-purpose registers in a Microprocessor, your colleague asks you to discuss THREE advantages and TWO disadvantages of having more general-purpose registers in a Microprocessor. **(10 Marks)**

b) Using detailed examples describe FIVE Addressing Modes of the 8085 microprocessors. **(10 Marks)**