

MACHAKOS UNIVERSITY
SCHOOL OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF COMPUTING AND IT
SECOND YEAR SECOND SEMESTER
UNIT NAME: MICROPROCESSOR AND ASSEMBLY LANGUAGE
PROGRAMMING
UNIT CODE: SCO 209
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)**