ZIMBABWE EZEKIEL GUTI UNIVERSITY

FACULTY OF HEALTH, SCIENCE AND TECHNOLOGY

DEPARTMENT OF DIGITAL TECHNOLOGY

EXAMINATION PAPER

COURSE CODE	:	CDT 411
COURSE TITLE	:	Microprocessors and Microcontrollers
SPECIAL REQUIREMENTS	:	None
DURATION	:	3 Hours
LEVEL	:	**4.1**
DATE	:	2022

17 FEB 2022

INSTRUCTIONS TO CANDIDATES:

1. Answer any 4 Questions from the whole paper.
2. The total Marks for the examination is 100.
3. The marks allocation for each question are indicated in square brackets [].

QUESTION 1

a) Where is the READY signal used? [2]

b) With a neat diagram, explain the Architecture of 8085 microprocessor? [15]

c) Explain the interrupt structure of 8085using the following pins?

(i) TRAP
(ii) RST 7.5
(iii)RST 6.5
(iv)RST 5.5
(v) INTR [5]

d) What are the different types of interrupts? [3]

[TOTAL MARKS: 25]

QUESTION 2

a) Explain the function of the following pins of 8085 microprocessor

i) ADO-AD7
ii) S0, S1
iii) RD
iv) INTR
v) INTA [10]

b) Copy and complete table below with the following operations
Write, Read, Fetch, and **Halt.**

S1	S0	OPERATION
0	0	
0	1	
1	0	
1	1	

[8]

c) List the flags of 8085 microprocessor [5]

d) What is polling? [2]

[TOTAL MARKS: 25]

QUESTION 3

a) List all the different categories of instructions for the Intel 8085 Microprocessor giving an example for each category. [10]

b) The following program is executed on the Intel 8085 microprocessor:

```
MVI A, 03H;
MVI B, 03H;
ADD B;
MOV C, B;
DCR B;
ADI 02H;
HLT;
```

After executing the program, what are the contents of

i) Register B
ii) Register C
iii) Accumulator
iv) The Zero Flag
v) The Parity Flag [6]

c) Using the Intel 8085 instruction set, write an assembly program to find greatest between two numbers. [9]

[TOTAL MARKS: 25]

QUESTION 4

a) What is a microcontroller? [2]

b) Distinguish between a microcontroller and a microprocessor [10]

c) Describe the function of status signals in the 8085 microprocessor? [2]

d) Discuss the following registers

(i) Accumulator
(ii) Program Counter
(iii) H-L register pair [6]

e) List 5 examples of embedded systems [5]

[TOTAL MARKS: 25]

QUESTION 5

a) Outline the features of the 8051 microcontroller [10]

b) Draw a clearly and neatly labelled block Diagram of 8051 microcontroller [10]

c) Explain **PUSH** and **POP** in relation to the 8051 stack [5]

[TOTAL MARKS: 25]

End of Paper