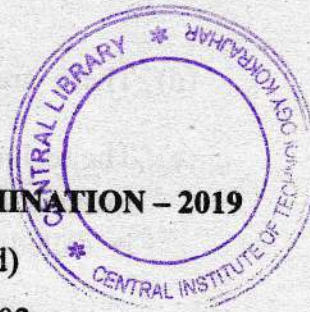


Total No. of printed pages = 6



END SEMESTER/RETEST EXAMINATION - 2019

Semester : 5th (Old)

Subject Code : Et-502

MICROPROCESSOR

Full Marks - 70

Time - Three hours

The figures in the margin indicate full marks for the questions.

Instructions :

1. All questions of PART - A are compulsory.
2. Answer any five questions from PART - B.

PART - A

Marks - 25

1. Fill in the blanks : 1×10=10
 - (a) An instruction has two parts : Opcode and the _____.
 - (b) ALE stands for _____.
 - (c) Accumulator is a _____ bit register.

[Turn over

- (d) There are _____ addressing modes.
- (e) The technique of assigning a memory address to each I/O device in the computer system is called _____.
- (f) Intel 8008 was developed in the year _____.
- (g) STA 2500H takes _____ T state machine cycles.
- (h) Ready signal is used in microprocessor to _____ with slow peripheral device.
- (i) Address bus is unidirectional and data bus is _____.
- (j) The first machine cycle of an instruction is always cycle _____.

2. Write true or false : $1 \times 10 = 10$

- (a) The 8085 is a 4-bit microprocessor.
- (b) We can not combine accumulator and flag register to form 16-bit register whereas B and C, D and E, H and L can be combined to form a 16-bit register.

304/EI-502/Micropro(O) (2)

- (c) Opcode fetch machine cycle of 8085 microprocessor has 4T states.
- (d) The memory is the brain of the computer.
- (e) 8085 microprocessor operates on +5V.
- (f) Port-A, Port-B and Port-C are the Ports of PPI 8255.
- (g) ROM is a non volatile memory.
- (h) ALU performs arithmetic and logical operations.
- (i) Lower byte of address bus (A0-A7) are multiplexed with data bus (AD0-AD7) to reduce the number of pins of microprocessor.
- (j) In a microprocessor flag registers indicate status of an arithmetic and logic operation.

3. Choose the correct answer : $1 \times 5 = 5$

- (a) HLT opcode means
- (i) load data to accumulator
- (ii) store result in memory
- (iii) load accumulator with contents of register
- (iv) end of program

304/EI-502/Micropro(O) (3)

[Turn over

(b) Which one of the following is not a vectored interrupt ?

- (i) TRAP
- (ii) INTR
- (iii) RST 7.5
- (iv) RST 3

(c) What is meant by ALU.

- (i) Arithmetic logic upgrade
- (ii) Arithmetic logic unsigned
- (iii) Arithmetic local unsigned
- (iv) Arithmetic logic unit

(d) In 8085 name of the 16 bit registers is

- (i) Stack pointer
- (ii) Register B
- (iii) Register A
- (iv) None of these

(e) The five flags in 8085 are designated as

- (i) Z, CY, S, P and AC
- (ii) D, Z, S, P, and AC
- (iii) Z, C, S, P, AC
- (iv) Z, CY, S, D, AC

304/Et-502/Micropro(O) (4)

400(W)

PART - B
Marks - 45

4. (a) Explain with diagram the function of each register of 8085 microprocessor. 3

(b) Give description of different types of bus of 8085 microprocessor with proper diagram. 3

(c) Define machine language, assembly language and high level language. 3

5. (a) Explain the terms : hardware, software and firmware. 3

(b) Explain the function of compiler, assembler and interpreter. 3

(c) Explain what subroutine is. What instruction is used to call a subroutine? Give an example. 3

6. (a) What is DMA Controller? Describe the function of DMA controller. 3

(b) Explain why D/A conversion is required. 3

(c) Discuss the operating principle of a successive approximation type A/D converter. 3

304/Et-502/Micropro(O) (5)

[Turn over

7. (a) Draw and explain the timing diagram for memory read operation. $4\frac{1}{2}$
- (b) Classify the instruction set for 8085 microprocessor in various groups. Give examples of instructions for each group. $4\frac{1}{2}$
8. (a) Describe the de-multiplexing of AD_0 - AD_7 bus with necessary diagrams. $4\frac{1}{2}$
- (b) Explain the different operating modes of PPI. $4\frac{1}{2}$
9. Write an assembly language program to add two 8-bit numbers. The sum may be of 16 bits. 9
10. Write an assembly language program to get the smallest number in a data array. 9
11. With the help of an internal block diagram, describe the working principle of 8255 PPI. 9

