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 : 1×10=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.

(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 : 1×5=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

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

(i) TRAP (ii) INTR

(ii) RST 7.5 (iv) RST 3

(c) What is mean 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

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

7. (a) Draw and explain the timing diagram for memory read operation. 4½

   (b) Classify the instruction set for 8085 microprocessor in various groups. Give examples of instructions for each group. 4½

8. (a) Describe the de-multiplexing of AD_0-AD_7 bus with necessary diagrams. 4½

   (b) Explain the different operating modes of PPI. 4½

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