Total No. of printed pages = 7

END SEMESTER EXAMINATION – 2021

Semester : 5th

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) Generation of the computer is upgraded with the advancement of the ———.

   (b) In fourth generation computers, ——— is used.

   (c) Flag register is a ——— bit register.

[Turn over

(d) In 8085, there are ——— numbers of control signals.

(e) Program counter holds the ——— of memory location.

(f) Machine cycle gives the time required to execute an ———.

(g) Auxiliary carry flag is ———, when there is no carry from D_3 bit to D_4 bit.

(h) To retrieve data from stack ——— instruction is used.

(i) The memory address capacity of 8086 is ———.

(j) There are ——— segments register in 8086 microprocessor.

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

(a) The code segment of the memory holds instruction codes of a program.

(b) The last instruction of subroutine in 8085 is CALL.

(c) For the minimum mode of operation the pin MN/MX is connected to V_{cc}.

(d) MOV BX, 8538 H, means move 16 bit data 8538H to BX.

(e) In memory mapped I/O, the device is identified by 8-bit address.

(f) In 8085, if the signal at the ready pin is low, the microprocessor enters into wait state.

(g) Intel 8255(PPI) is an important general purpose I/O device that can be used with almost any microprocessor.

(h) Intel 8259 (PIC) manage seven interrupts according to the instructions written into its control registers.

(i) In 8259, when the address line A_0 is at logic 0, the controller is selected to write a command or read a status.

(j) In 8085 , the instruction MOV A , M is an example of direct addressing.

3. Choose the correct answer : 1×5=5

(a) In 8086, four segment registers are

(i) BS, DS, CS, ES

(ii) CS, DS, SS, ES

(iii) HS, LS, BS, CS

(iv) ES, DS, XS, BS

(b) HLT opcode means

(i) Load data to accumulator

(ii) Load the accumulator with the content of the memory

(iii) End of program

(iv) Store result in memory

(c) Mov B, M means

(i) The content of memory location will be load in B register.

(ii) The address of memory locaton will be loaded in B-C register pair.

(iii) The content of M register will be transferred to B register.

(iv) The content of B register will move to memory.

(d) To execute STA, 8050H instruction, the required number of machine cycle are

(i) 2 (ii) 3

(iii) 4 (iv) 6

(e) In DMA (intel 8257), the number of channels used is / are

(i) 3 (ii) 4

(iii) 1 (iv) 2

PART – B

Marks – 45

4. (a) Define microcomputer. 2

(b) What are the different language translators ? Explain briefly. 5

(c) Write few lines about cache memory. 2

5. (a) Write about the different functions of buses in 8085 with proper diagram. 5

(b) Explain with proper diagram , the generation of read/write control signals. 4

6. (a) Why lower order address bus and data bus are multiplexed and demultiplexed ? 3

(b) Draw the timing diagram of MOV A, B and explain properly. 6

7. (a) What are stack and stack pointer ? 3

(b) With the help of PUSH and POP, how we can store and retrieve the data in stack ? Explain with proper figure and example. 6

8. (a) Write an ALP to find the larger number of two 8-bit numbers, stored in two different registers. 4

(b) Write an ALP to add two 8-bit numbers, which are stored in 2000H and 2010 H. The result is 16-bit number. 5

9. (a) Draw the block diagram of 8255 and explain the operation. 5

(b) Make the control word when the ports of Intel 8255 are defined as follows :

(i) Port A as an output port

(ii) Mode of port A-Mode1

(iii) Port B as an input port

(iv) Mode of port B-mode 0

(v) Port C_{upper} as an input port

(vi) Port C_{lower} as an output port. 4

10. (a) What are the different general purposes registers in 8086 microprocessor ? 2

(b) Explain the different modes of operation in 8086. 4

(c) Write briefly about memory segmentation. 3

11. (a) Write about the different classes of instructions. Give example of each. 6

(b) Write a program to add two 16-bit number with or without carry in 8086. 3