Total No. of printed pages = 6

Et-502/Micro/5th Sem/2017/N

MICROPROCESSORS

Full Marks – 70

Time – Three hours

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

FIRST PART

Marks – 25

Multiple choice questions.

1. ALE stands for 1

   (a) address latch enable

   (b) accumulator latch enter

   (c) address latch enter

   (d) accumulator latch enable

[Turn over

2. The instruction MVI A, 20 in 8085 means 1

(a) contents of memory location 20 are brought into the accumulator

(b) the value 20 is brought into accumulator

(c) Either (a) or (b) above

(d) Neither (a) or (b) above

3. The number of interrupt lines in 8085 is 1

(a) 2 (b) 3

(c) 4 (d) 5

4. The five flags in 8085 are designated as 1

(a) Z, CY, S, P and AC

(b) D, Z, S, P, AC

(c) Z, C, S, P, AC

(d) Z, CY, S, D, AC

5. In 8085 the pins for +5V input and ground are 1

(a) 20 and 40 respectively

(b) 40 and 20 respectively

(c) 1 and 2 respectively

(d) 2 and 1 respectively

6. What is the address space size of 8085 ? 1

7. In 8085 which instructions are useful for writing and using subroutines ? 1

8. What is the total number of pins in 8085 ? 1

9. What is the bit size of the stack pointer (SP) of 8085 ? 1

10. Name one 8 bit register of 8085. 1

11. Fill in the blanks with suitable words : 1×5=5

(a) _____ bus is bidirectional.

(b) In 8085, carry flag is _____ when an arithmetic operation results in carry.

(c) In 8085 accumulator has _____ bits.

(d) The fetch cycle has _____ machine cycle.

(e) In 8085 read and write control signals are active _____.

12. Indicate whether the following statements are true or false ? 1×5 =5

(a) System bus is the communication channel between microprocessor and peripherals.

(b) The sign (S) flag is set when the contents of accumulator become negative during an operation.

(c) In 8085, F register has 8 bits.

(d) One T state is precisely equal to one clock period.

(e) In 8085 eight addresses and data buses are multiplexed.

13. How many memory locations can be addressed by a microprocessor with 14 address lines ? 1

14. How many bytes make a word of 32 bits ? 1

15. Which 8085 instruction complements the content of the accumulator ? 1

16. Which port of the 8285 PPI can be used as two-bit ports ? 1

17. How many T states does an opcode fetch cycle takes ? 1

SECOND PART

Marks – 45

1. Arrange the following according to priority : 2

   RST 7.5, RST 6.5, RST 5.5, INTR, TRAP

2. Define word, instruction. 2

3. Why are subroutines used in programs ? 2

4. Define instruction cycle, machine cycle and T-states. 2+2+2=6

5. Define opcode and operand. 2+2=4

6. Write the meaning of the following 8085 instructions : 1×4=4

   JMP 8023 H, LXI 2025H, INR C, STA 7025H

7. What is DMA controller ? 2

8. What is the role of the program counter in executing instructions ? 2

9. (a) Write an assembly language program to add two 8-bit numbers ? 4

   (b) Write an assembly language program to complement a number stored in memory location 3000H. Store the result in memory location 3001H. 4

10. Draw the timing diagram of memory read operation of 8085. 4

11. What is the function of a Programmable Interrupt Controller ? 3

12. Draw the 8085 bus structure. 3

13. Make a control word when the port of Intel 8255 are defined as follows : 3

Port A as input port

Mode of Port A – Mode 0

Port B as output port

Mode of Port B – Mode 0

Port C_{upper} as an input port

Port C_{lower} as an output port.