B.E./B.TECH Degree Examination, December 2020

Fifth Semester

EE18503 - MICROPROCESSORS AND MICROCONTROLLERS

(Regulation 2018)

Time: Three hours Maximum : 80 Marks

Answer **ALL** questions

PART A - (8 X 2 = 16 marks)

1. The contents of register A after the execution of the following 8085 program is _____

   MVI A, 55H

   MVI C, 25H

   ADD C

   DAA

   (a) 7AH, (b) 80H, (c) 50H (d) 22H

2. Memory mapped I/O involves

   (a) Transferring information between memory locations

   (b) Transferring information between registers and memory

   (c) Transferring information between the CPU and I/O devices is the same way as between the CPU and memory

   (d) Transferring information between I/O devices and memory

3. An example of a direct addressing MOV instruction is _____

   (a) MOV A, #30H

   (b) MOV A, 30H

   (c) MOV A, @30H

   (d) None of the above

4. Key debouncing by software is done by _____

   (a) Waiting for predetermined time

   (b) Reading the key repeatedly

   (c) Skipping the key code read

   (d) None of the above.

5. Give the principle behind interfacing an 8051 with a stepper motor.

6. What are the Special function registers associated with a timer operation in 8051?

7. Write an 8051 ALP to fill a block of internal memory RAM locations 30H to 34H with a specific data.

8. Discuss the important features of ARM instruction set.

PART B - (4 X16 = 64 marks)

09. (a) Draw the timing diagram for the instruction STA 6400 when the accumulator contents = 6FH. **(16)**

(OR)

(b) With necessary diagrams, explain the interrupt structure of 8085. **(16)**

10. (a) Write a 8085 ALP program to sort a given array in ascending order. **(16)**

(OR)

(b) Discuss the organization of the 8085 stack and the various instructions that will operate on the stack. **(16)**

11. (a) Draw and explain the block diagram to measure temperature using thermistor, ADC, and 8051 microcontroller. Write the algorithm for the above system. **(16)**

(OR)

(b) Draw the diagram to interface a servo motor with 8051 microcontroller and explain. Also write an 8051 ALP to run the servo motor in forward direction with delay. **(16)**

12. (a) (i) List the applications of ARM processor and explain them in brief. **(8)**

(ii) Explain the features of pipelining with the help of instructions as example. **(8)**

(OR)

(b) (i) Compare ARM and thumb instructions. **(8)**

(ii) Sketch a neat ARM core data flow model. **(8)**