Reg. No _____

Name _____

FIFTH SEMESTER B.TECH DEGREE EXAMINATION

Branch: Applied Electronics & Instrumentation / Electronics & Communication Engineering

13.503 Microprocessors & Microcontrollers (AT)

Time: 3 Hours   **Max. Marks: 100**

Part – A

Answer all questions
(10×2 marks=20 marks)

1. Mention priority for various interrupts in 8085?

2. Differentiate between various types of buses.

3. What is a T- state? How many T states are present in the instruction MOV A, B. Comment on the time required for its execution.

4. What is DMA? What is use of a HOLD signals?

5. Which is TRAP. What happens to the PC contents when this is executed?

6. Mention four major differences between Microprocessors and Micro controllers

7. What is PSW in 8051? What is the role of PSW special function   register in resuming program execution after servicing a subroutine?

8. What are the 3 types of jump instructions in 8051?

9. Write any four functions of serial port control register in 8051?

10. What is the 3 stage pipeline present in ARM 7 TDMI single cycle instruction.

Part – B

Module I

11. (a) Classify the 8085 instruction set   to various types. Sketch the contents of PSW when each instruction is executed giving examples for each type.

                                                                    (10 arks)

(b) Sketch the architecture of 8085 and explain it briefly   **(10 marks)**

OR

12. (a) What are the various machine cycles? Sketch the timing diagram of a 2 byte instruction and explain. **(10 marks)**

(b) Write a 8085 program to sort ten single byte numbers in ascending order and store the result starting from the location 4000(H). **(10 marks)**

Module II

13. (a) Sketch the internal architecture for various ports in 8051. Write a program to find the highest of 100 single byte numbers and store the result in 8000H

(10 arks)

(b) In 8051, configure Timer 0 in mode 2 and calculate the time taken for overflow flag to be raised if clock frequency is 16 MHz and TH0 is loaded with 90H

(10 marks)

OR

14. (a) Draw the internal architecture of 8051 and explain it briefly **(10 marks)**

(b) Explain various types of addressing modes in 8051 with suitable examples

(10 marks)

Module III

15. (a) Explain how ADC 0808 is interfaced with 8051. Sketch the timing diagram for ADC interface. **(10 marks)**

(b) Draw the block diagram of 8051 serial port in mode2 and discuss its features

(10 marks)

OR

16. (a) Explain how a LCD module is interfaced with 8051 **(10 marks)**

(b) Draw the block diagram of 8051 serial port operation in mode 0 and discuss its features

(10 marks)

Module IV

17. (a) What is the 3 stage pipeline present in ARM 7 TDMI single cycle instruction. Explain briefly **(10 marks)**

(b) Sketch the block diagram of architecture of a PIC micro controller and explain briefly **(10 marks)**

OR

18. (a) What are the seven basic operating modes of ARM processor. What are exception modes among them. Mention the subset of registers accessed in each mode. **(10 marks)**

(b) What are the steps involved in programming PIC16F84. What are the languages used. Mention one typical application of PIC16F84

(10 marks)