

Register No.: Name:

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

FIFTH SEMESTER B.TECH DEGREE EXAMINATION (Regular), DECEMBER 2022**ELECTRICAL AND ELECTRONICS ENGINEERING****(2020 SCHEME)****Course Code : 20EET303****Course Name: Microprocessors and Microcontrollers****Max. Marks : 100****Duration: 3 Hours****PART A*****(Answer all questions. Each question carries 3 marks)***

1. Explain the status flags of 8085 microprocessor.
2. Define instruction cycle, machine cycle and T state.
3. Specify the content of the accumulator, when the following instructions are executed.
MVI A, 6E
ORA A
RAL
4. Explain the sequence of operation taking place when a CALL instruction is executed.
5. Distinguish between vectored and non vectored interrupts.
6. Differentiate microprocessors and microcontrollers.
7. List the data types of 8051C.
8. Write an 8051 microcontroller C program to toggle all the bits of port 0.
9. Explain the SBUF register in 8051 microcontroller.
10. Write a program to use timer 1 in mode 1 to create a delay.

PART B***(Answer one full question from each module, each question carries 14 marks)*****MODULE I**

11. a) Sketch neatly the architecture of 8085 microprocessor. Also explain the general purpose registers and special purpose registers. (8)
b) Explain the addressing modes of 8085 microprocessor with suitable examples. (6)

OR

12. a) Explain the operation of the following instructions in 8085 microprocessor.
i) LHLD 4501 ii) ORI 12 iii) DCX B iv) XTHL v) PUSH PSW (6)
vi) RAL

- b) Draw a neat timing diagram for the instruction OUT 85 in 8085 microprocessor. Explain the machine cycles involved in the instruction. (8)

MODULE II

13. a) Explain the stack operation for CALL and RET instructions in 8085 microprocessor. (6)
b) Write an 8085 microprocessor ALP program for arranging an array in descending order. The first element of the array should be the number of elements in the array. (8)

OR

14. a) Explain how delay subroutines can be implemented using nested loop. (4)
b) Write a delay program to provide a delay of 500 μ s, assuming the system clock period to be 350ns. (4)
c) Write an 8085 microprocessor ALP program to convert a BCD number to binary number. (6)

MODULE III

15. a) Distinguish between hard and soft real time systems with examples. (4)
b) Explain the operation of RIM instruction. (4)
c) With a neat sketch, explain the Program Status Word (PSW) register of 8051 microcontroller. (6)

OR

16. a) Explain the control word formats of 8255. What would be the mode of operation of 8255 when the control word is 80H. (8)
b) Explain the interfacing of seven segment LED with 8085 microprocessor. (6)

MODULE IV

17. a) Explain the following 8051 microcontroller instructions. (6)
i) DJNZ R2, Loop ii) MOVC A, @A+PC iii) XCHD A, @Ri
iv) SETB P1.6 v) ANL A, #0C vi) MUL AB
b) Explain the addressing modes of 8051 microcontroller with examples. (8)

OR

18. a) Explain the assembler directives of 8051C. (4)
b) Explain any six-bit manipulation instructions of 8051 microcontroller with examples. (6)
c) Write an 8051 microcontroller ALP program to multiply two 8 bit numbers. (4)

MODULE V

19. a) Describe TMOD register in 8051 microcontroller. (7)
b) Describe PCON register in 8051 microcontroller. (7)

OR

20. a) Discuss the different modes of serial data transmission in 8051 microcontroller. (7)
b) List the interrupts in 8051 microcontroller and explain the Interrupt Enable register. (7)
