

D

02000MRT206052104

Pages: 3

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Fourth Semester B.Tech Degree Regular and Supplementary Examination June 2023 (2019 Scheme)



Course Code: MRT206

Course Name: MICROPROCESSOR & EMBEDDED SYSTEMS

Max. Marks: 100

Duration: 3 Hours

PART A

(Answer all questions; each question carries 3 marks)

		Marks
1	Define a Microprocessor.	3
2	Explain the concept of RISC Processor?	3
3	What is Harward style of architecture?	3
4	Point out the different timing and control signal of 8085.	3
5	Mention the role of RAM in Microcontroller.	3
6	Explain Program Counter Register used in 8085.	3
7	Explain Interrupt Service Routine.	3
8	List the different steps used in executing an interrupt.	3
9	Compare high level programming and low-level programming with an example.	3
10	Comprehend Interrupt and polling.	3

PART B

(Answer one full question from each module, each question carries 14 marks)

Module -1

11	a) Explain the architecture of 8085 Microprocessor with neat diagram.	10
	b) Explain various interrupts used in 8085.	04
12	a) Explain following instruction used in 8085.	10

- i. SUI
- ii. DCR
- iii. DAA
- iv. CMP
- v. XRI
- vi. RRC

- vii. MOV
- viii. LDA
- ix. OUT
- x. STAX

- b) Write a program to add data at 3005H & 3006H memory location and store the result at 3007H memory location. 04

(3005H) = 14H

(3006H) = 89H

Module -2

- 13 a) Explain the Instruction cycle in 8085 Microprocessor and draw the timing diagram for instruction SPHL. Determine the T-States required for the execution of this instruction. 14
- 14 a) Explain the block diagram of Programmable Peripheral Interface (PPI) 8255 in detail. 10
- b) Explain the input/output modes of operation of 8255 in detail. 04

Module -3

- 15 a) Explain the sequential phases of Waterfall model using suitable diagram. Also explain the applications and advantages of Waterfall model. 10
- b) Write any five characteristics of Embedded System. 04
- 16 a) Write any 5 differences between Assembler and Compiler. 07
- b) What do you understand with real-time systems? Explain Hard real time system with at-least five examples. 07

Module -4

- 17 a) Mention the different addressing modes used in 8051 Microcontroller? Explain Immediate and Register Addressing mode in detail using suitable example. 06
- b) Use Assembler directives to place constants 0FCH, 05H, 76H, 28D and character string "SAM" in consecutive program memory location beginning from location 0050H. Add the numbers 56H and 95H, and show how the CY, AC and P flags are affected. 08
- 18 a) Draw and explain the pin diagram of 8051 microcontroller. 10
- b) Write an assembly program to add two 16-bit numbers, the numbers are FC45H and 02ECH. 04

Module -5

- 19 a) Write an 8051 C program to toggle all the bits of P1 Continuously. 07
b) LEDs are connected to bits P1 and P2. Write an 8051 C program that shows the count from 0 to FFH (0000 0000 to 1111 1111 in binary) on the LEDs 07
- 20 Write an 8051 C program to transfer the message "YES" serially at 9600 baud, 8-bit data, 1 stop bit. Do this continuously. 14
