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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S5 (S,FE) (FT/WP), (S3 PT) Examination May 2025 (2019 Scheme)

Course Code: EET 303

Course Name: MICROPROCESSORS AND MICROCONTROLLERS

Max. Marks: 100 Duration: 3 Hours

PART A

(Answer all questions; each question carries 3 marks) Marks

1		Explain the significance of ALE,RD,WR signals in 8085 Microprocessor.	3
2		Define T state, Machine cycle, Instruction cycle in 8085 Microprocessor.	3
3		Explain any three addressing modes of 8085 Microprocessor with suitable examples.	3
4		Explain software and hardware interrupts.	3
5		Explain the importance of external pull up resistor in 8051 Microcontroller.	3
6		List the applications of embedded systems.	3
7		Differentiate the instructions AJMP,LJMP,SJMP in 8051 Microcontroller.	3
8		Explain PSW register in 8051 Microcontroller.	3
9		Illustrate SCON register and SBUF register in 8051 Microcontroller.	3
10		Explain the significance of auto reload mode of timer in 8051 Microcontroller.	3

PART B

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

Module -1

11	a)	Describe 1 byte, 2 byte ,3 byte instructions in 8085 Microprocessor with suitable examples.	6
	b)	Sketch and explain the timing diagram for opcode fetch of the instruction MOV C,A with opcode 4FH stored in the memory location 2005H.	8
12	a)	Illustrate the Register organization of 8085 Microprocessor.	4
	b)	Describe the flags in 8085 Microprocessor with suitable examples.	10

Module -2

13	a)	Explain PUSH and POP instructions of 8085 Microprocessor with suitable examples.	6
	b)	Write an ALP in 8085 to convert Binary number to BCD number.	8

14	a)	Explain data transfer instructions in 8085 Microprocessor with suitable examples.	6
	b)	Write and explain an ALP in 8085 to sort an array of 4 numbers in ascending order.	8

Module -3

15	a)	Distinguish between maskable and non-maskable interrupts in 8085.	4
	b)	Explain the need of PPI 8255 in 8085 Microprocessor. Draw the control word format for the I/O mode of 8255.	10
16	a)	Explain the internal Memory organization of 8051 Microcontroller.	6
	b)	Explain the Special Function Registers for timer control.	8

Module -4

17	a)	Explain the operation of following instructions of 8051 Microcontroller. (a)SWAP A (b)CPL C (c)RL A	6
	b)	Explain the interrupts in 8051 Microcontroller.	8
18	a)	Write an ALP for 8051 Microcontroller to transfer a block of data from memory location 30H to 40H.	6
	b)	Explain the port structure of 8051 Microcontroller.	8

Module -5

19	a)	Describe the generation of time delay using the timer of 8051 microcontroller.	8
	b)	Explain baud rate in 8051 Microcontroller. Explain the relation between crystal frequency and baud rate.	6
20	a)	Describe the mode and timer selected for the following instructions. (a) MOV TMOD, #01H (b) MOV TMOD, #20H (c) MOV TMOD, #12H	6
	b)	Write a program to generate a square wave of 2 kHz frequency on pin P1.5. Assume that XTAL = 11.0592 MHz	8

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