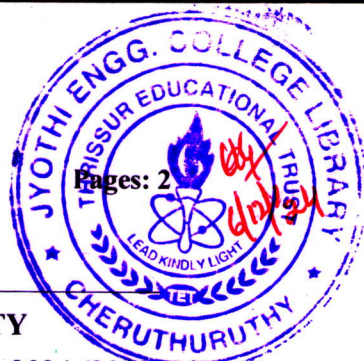


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Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S5 (R, S) / S5 (WP) (R) / S3 (PT) (S,FE) Examination November 2024 (2019 Scheme)

Course Code: CST 307

Course Name: MICROPROCESSORS AND MICROCONTROLLERS

Max. Marks: 100

Duration: 3 Hours

PART A

(Answer all questions; each question carries 3 marks)

		Marks
1	What are the differences between 8085 and 8086 microprocessors?	3
2	Describe the functions of following signals in 8086 microprocessors. i) ALE ii) BHE iii) NMI	3
3	List the 8086 instructions used for transferring data between registers, memory, stack, and I/O devices.	3
4	Specify the use of the assembler directives: i) ENDP ii) ASSUME	3
5	Explain how the INT n instruction finds the starting address of its interrupt service routine in IVT.	3
6	Explain the stack structure of 8086.	3
7	List the features of 8254 Programmable Interval Timer.	3
8	Interpret the mode and configurations of 8255 after its control word register is loaded with 83H.	3
9	Describe internal memory organization of 8051 microcontroller.	3
10	Explain IO ports available in 8051.	3

PART B

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

Module 1

- | | | |
|----|--|---|
| 11 | a) Draw the architecture of 8085. | 5 |
| | b) Describe minimum mode configuration of 8086 and what is the significance of bus controller in the maximum mode configuration? | 9 |
| 12 | a) Draw the structure of 8086 flag register and mention the purpose of each flag. | 5 |
| | b) Explain the physical and logical memory organization of 8086 with neat diagrams. | 9 |

Module 2

- | | | | |
|----|----|---|----|
| 13 | a) | Discuss addressing modes supported by 8086 with suitable examples. | 10 |
| | b) | Find the physical address of the memory locations referred by the following instructions, when DS = 9D8FH, CS = 500CH, BX = 03B2H, SI = 1004H.
i) MOV [BX], AL ii) MOV AL, [BX][SI]A3H | 4 |
| 14 | a) | Write an 8086 assembly language program for finding the reverse of a given input string. | 7 |
| | b) | Explain Branching instructions with suitable examples. | 7 |

Module 3

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|----|----|---|----|
| 15 | a) | Draw and explain the internal architecture of 8259. | 6 |
| | b) | Explain the interrupt process of 8086. | 8 |
| 16 | a) | Differentiate maskable and non-maskable interrupts in 8086. | 4 |
| | b) | Interface two 32K X 8 EPROMS and two 32K X 8 RAM chips with 8086, microprocessor and draw the suitable circuit showing their interfacing. | 10 |

Module 4

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|----|----|---|----|
| 17 | a) | Explain the operation modes of 8254 programmable timer with a neat diagram. | 9 |
| | b) | With a neat diagram describe the architecture of 8255 PPI. | 5 |
| 18 | a) | Explain the different modes of operation of 8255 in detail. | 10 |
| | b) | Draw the internal architecture of 8257. | 4 |

Module 5

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|----|----|---|---|
| 19 | a) | Explain the Internal RAM organization of 8051 with neat diagram. | 5 |
| | b) | Explain the addressing modes of 8051 with example. | 9 |
| 20 | a) | Explain internal architecture of 8051 with neat diagram. | 9 |
| | b) | Write an assembly language program to transfer ten bytes of data from memory location 3500H to 3700H. | 5 |
