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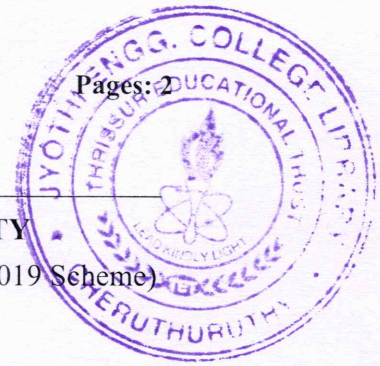
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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

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. 6
 (a) SWAP A (b) CPL C (c) RL A
- 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. 6
 (a) MOV TMOD, #01H (b) MOV TMOD, #20H (c) MOV TMOD, #12H
- b) Write a program to generate a square wave of 2 kHz frequency on pin P1.5. 8
 Assume that XTAL = 11.0592 MHz
