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Question Paper Code	12437
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B.E./B.Tech - DEGREE EXAMINATIONS, NOV / DEC 2023
Fifth Semester
Electrical and Electronics Engineering
20EPC503 - MICROPROCESSORS AND MICROCONTROLLERS
(Regulations 2020)

Duration: 3 Hours

Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

- | | <i>Marks,
K-Level, CO</i> |
|--|-------------------------------|
| 1. Describe the function of program counter in 8085 microprocessor? | 2,K1,CO1 |
| 2. List out the machine cycles of 8085 microprocessor. | 2,K1,CO1 |
| 3. Differentiate MVI and MOV instructions. | 2,K2,CO2 |
| 4. Discuss significance of 'XTHL' and 'SPHL' instructions. | 2,K2,CO2 |
| 5. List the operation modes of 8255. | 2,K1,CO3 |
| 6. Define the internal registers available in 8259 PIC. | 2,K1,CO3 |
| 7. List the interrupts of 8051 microcontroller. | 2,K1,CO4 |
| 8. Give the vector address and priority sequence of 8051 interrupts. | 2,K2,CO4 |
| 9. State the applications of Cortex M0 processor. | 2,K2,CO5 |
| 10. State the registers used in Cortex-M0 processor. | 2,K2,CO5 |

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

- | | |
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| 11. a) (i) Discuss in detail about the timing diagram for MVI A, 32H. | 7,K2,CO1 |
| (ii) Interpret the timing diagram for MOV A, M. | 6,K2,CO1 |

OR

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| b) Explain with a neat block diagram the architecture of 8085 microprocessor. | 13,K2,CO1 |
| 12. a) (i) Apply an assembly language program to find two's complement of a 16 bit data. | 7,K3,CO2 |
| (ii) Illustrate an assembly language program to shift a 16 bit number left of two bits. | 6,K3,CO2 |

OR

- | | |
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| b) (i) Apply a program to output square wave of 1kHz frequency on the SOD pin of 8085 for 5 seconds. | 7,K3,CO2 |
| (ii) Demonstrate an assembly language program to generate the | 6,K3,CO2 |

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create

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square wave form using DAC. Assume the TON=70% .

13. a) Illustrate the control word of 8254 timer/counter and explain the operation modes of 8254 timer/counter. *13,K2,CO3*

OR

- b) Illustrate and draw the interfacing of A/D and D/A converter interfacing to 8085 μ p. *13,K2,CO3*

14. a) (i) Explain how the internal timers are used to generate time delay by using 8051 microcontroller. *7,K2,CO4*
(ii) Explain program memory interfacing in 8051 microcontroller. *6,K2,CO4*

OR

- b) With suitable block diagram, explain the architecture of 8051 microcontroller. Also explain the function of each block. *13,K2,CO4*

15. a) With suitable block diagram, explain the typical program-generation flow. Also explain the function of each block. *13,K2,CO5*

OR

- b) With suitable block diagram, explain the cortex-M0 processor. Also explain the function of each block. *13,K2,CO5*

PART - C (1 \times 15 = 15 Marks)

16. a) (i) Explain briefly about subroutine with example. *7,K2,CO2*
(ii) Compare BSR mode and I/O mode of 8255. *8K2,CO3*

OR

- b) (i) Summarize the operation of stack with suitable example. *8,K2,CO2*
(ii) Illustrate briefly the block diagram of 8255A PPI. *7,K2,CO3*