Reg No.:_____ Name:_____

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

Fifth Semester B.Tech Degree Regular and Supplementary Examination December 2020

**Course Code: EE309**

**Course Name: MICROPROCESSOR AND EMBEDDED SYSTEMS**

Max. Marks: 100 Duration: 3 Hours

**PART A**

***Answer all questions, each carries5 marks.*** Marks

| | | | |
|---|---|---|---|
| 1 | | Discuss the addressing modes of 8085 microprocessor with an example for each. | (5) |
| 2 | | Sketch the timing diagram of LDA 4500 | (5) |
| 3 | | Explain the control word register of 8255 | (5) |
| 4 | | Compare hard and soft real time systems | (5) |
| 5 | | List any five logical instruction of 8051 | (5) |
| 6 | | Explain the multifunction of Port 3 of 8051 | (5) |
| 7 | | Explain the data types and directives of 8051 | (5) |
| 8 | | What is simplex, half duplex and full duplex in serial communication | (5) |

**PART B**

***Answer any two full questions, each carries10 marks.***

| | | | |
|---|---|---|---|
| 9 | a) | Write a program to convert a packed BCD number stored in location 2200 to binary and store in location 2230 | (5) |
| | b) | Explain CALL and RETURN instructions | (5) |
| 10 | a) | Describe the following 8085 instructions (i) DAD Rp (ii) CMP M | (5) |
| | b) | Write a delay subroutine using register pair | (5) |
| 11 | a) | Explain in detail the different flags of 8085 | (5) |
| | b) | Discuss instruction cycle, machine cycle and T state of 8085 | (5) |

**PART C**

***Answer any two full questions, each carries10 marks.***

| | | | |
|---|---|---|---|
| 12 | a) | Write a short note on different interrupts in 8085 | (5) |
| | b) | List any five application domain of embedded system | (5) |
| 13 | a) | Design an interfacing circuit for one 4K x 8 RAM and one 4K x 8 EPROM with 8085 microprocessor and find the memory address range | (5) |
| | b) | Explain the BSR operation of 8255 PPI | (5) |

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|---|---|---|---|
| 14 | a) | Show the interfacing of LED with 8085 using 8255 PPI and write a program to continuously turn ON and OFF with a duty ratio of 0.5 | (7) |
| | b) | Differentiate between assembler and compiler | (3) |

## PART D

***Answer any two full questions, each carries 10 marks.***

| | | | |
|---|---|---|---|
| 15 | a) | Explain MOV, MOVX and MOVC | (5) |
| | b) | Explain the various modes of operation of Timer of 8051 | (5) |
| 16 | a) | Explain the register banks of 8051 | (4) |
| | b) | Write an ALP in 8051 to multiply two numbers and store the result in external memory locations 4500 and 4501. | (6) |
| 17 | a) | Draw the internal architecture of 8051 microcontroller | (4) |
| | b) | Write a program for a counter to find the frequency of the signal connected to P3.4 | (6) |

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