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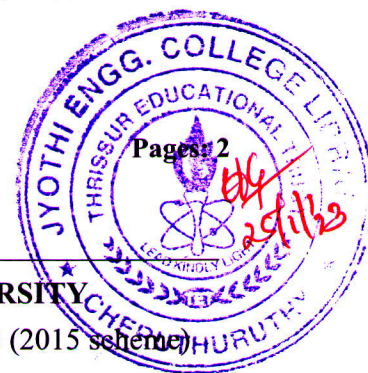
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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
Fifth Semester B.Tech Degree (S,FE) Examination January 2023 (2015 scheme)

Course Code: EE309
Course Name: MICROPROCESSOR AND EMBEDDED SYSTEMS

Max. Marks: 100   Duration: 3 Hours

PART A
Answer all questions, each carries 5 marks.

                                                    Marks

1   Explain the operation of following instructions.   (5)

     a) LXI H,16bit b)LDAX B c)STAX B d) RAR

2   Explain the terms Machine cycle and Instruction Cycle.   (5)

3   Draw the control word format for the I/O mode of 8255.   (5)

4   List the field of applications for an embedded system.   (5)

5   With suitable examples explain addressing modes of 8051 Microcontroller.   (5)

6   What is the difference between LJMP and AJMP instruction in 8051?   (5)

7   Write 8051 C program to toggle the bits of P1 continuously with a delay of   (5)
250ms.

8   Explain with neat diagram the RAM of 8051.   (5)

PART B

Answer any two full questions, each carries 10 marks.

9   a)   Explain the significance of stack memory while executing CALL and Return   (5)
        instructions in 8085.

     b)   Differentiate between maskable and non-maskable interrupts in 8085.   (5)

10   Draw and explain the timing diagram of the instruction LDAX D.   (10)

11   a)   Write an ALP in 8085 to find the smallest number in an array.   (6)

     b)   Explain fetch cycle and execute cycle in 8085.   (4)

PART C

Answer any two full questions, each carries 10 marks.

12   a)   Explain with neat functional block diagram the operation of 8255 PPI.   (7)

     b)   Differentiate between Microprocessor and microcontroller   (3)

13 a) Show how a DAC can be interfaced with 8085 Microprocessor.   (6)

    b) Explain general characteristics of Embedded system.   (4)

14 a) Design a memory interface of 2K ROM and 2K RAM with 8085 using 2KX 8 bit   (6)
        memory chips.

    b) Explain assemblers, Linkers, Loaders and compilers.   (4)

PART D
Answer any two full questions, each carries 10 marks.

15 a) Explain I/O ports and its function in 8051.   (5)

    b) Find the values of TMOD register to operate as timers in following modes   (5)
        i)Mode 2 Timer1 ii)Mode1 Timer0

16 a) Explain the function of SCON, SBUF registers in 8051.   (5)

    b) Explain different bit jump and byte jump instructions in 8051.   (5)

17   Show how an LCD can be interfaced with 8051 and write a program to send   (10)
        'T','R','U','E' to LCD continuously.

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