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May-26-0073

ECEPC-412/EEEEPC-412 (Microcontrollers)

**B.Tech.-4th (CSE AI and ML, EE, EEE, ECE, CSE, AI and DS)
NEP**

Time : 3 Hours

Max. Marks : 60

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note: Attempt five questions in all, select one question each from section A, B, C, D. Section E (Question-9) is compulsory.

SECTION- A

1. With a neat diagram, explain the architecture and working of 8085 microprocessor. (12)
2. i. Draw the timing diagram of STA 2000H instruction and explain each step. (6)
ii. Explain the different types of interrupts supported by 8085. (6)

SECTION- B

3. i. With a neat block diagram, explain the working of 8255 Programmable Peripheral Interface. (6)
ii. Design an interfacing circuit for 8085 with 4KB ROM and 2KB RAM. (6)
4. i. Write an assembly program to interface and control an LED using 8255. (6)
ii. Explain the concept of memory-mapped I/O with example. (6)

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SECTION- C**

5. Explain data transfer and jump instructions in 8051 with examples. (12)
6. i. Describe the pin configuration of 8051 with a diagram. (6)
ii. Explain how interrupts are handled in 8051. (6)

SECTION- D

7. Write and explain an 8051 program to generate a square wave of 25% duty cycle using Timer 0. (12)
8. i. Write a program in 8051 to find the largest number from an array of 10 numbers. (6)
ii. With block diagram, explain the architecture of PIC microcontroller. (6)

SECTION- E (Compulsory)

9. i. Differentiate between general-purpose systems and embedded systems.
ii. Define a microprocessor.
iii. What is the function of 8255 PPI?
iv. Define DMA.
v. Define stack.
vi. Write two differences between PIC and ARM microcontrollers. (6×2=12)