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- (b) Draw the interfacing of two seven segment display through BCD to seven decoder/driver to Port 1 and Port 2 of 8051 Microcontroller. Write ALP to display number 00 to 99 on seven segment display.  $10+10=20$
8. Draw the interfacing of DAC 0808 to 8051 microcontroller. Write ALP to generate Square, saw tooth and Triangular wave using DAC 0808. 20

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Paper-ECE-415-E

Time allowed : 3 hours]

[Maximum marks : 100]

*Note : Attempt five questions in all, selecting one question from each unit.*

Unit-I

1. (a) Explain the evolution of microcontroller starting from 4-bit to 32-bit microcontrollers.

(b) List out the differences between microprocessor and microcontroller.

(c) Explain the features of 8051 Microcontroller.

$8+6+6=20$

2. Draw the block diagram of 8051 Microcontroller. Explain the function of each block. 20

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### Unit-II

3. (a) Give PSW (Program Status Word) content of 8051 Microcontroller. Give the functions of each flag.

- (b) Draw and describe the format of IE special function register of 8051.

- (c) Explain Timer modes of 8051 Microcontroller.

$$8+6+6=20$$

4. (a) Explain the different addressing mode of 8051 Microcontroller with suitable example.

- (b) Explain the different interrupts of 8051 microcontroller. Indicate their priorities and call locations. <http://www.kuonline.in>

- (c) Explain the structure of 8051 Register.

$$8+6+6=20$$

### Unit-III

5. (a) Write an assembly language program to generate a square wave on P1.1 pin of 8051 Microcontroller.

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- (b) Write an 8051 based assembly language program to find maximum number from an array. The array is in the external RAM with starting address 7400H and the length of the array is  $(256)_{10}$ .

$$10+10=20$$

6. (a) Interface 64K byte of EPROM and 64K byte of RAM to 8051 Microcontroller. Draw the memory map of RAM and EPROM.

- (b) Draw the Interfacing of ADC 0808 to 8051 Microcontroller. Analog input is connected to channel 3 of ADC 0808. Write ALP to read analog input and store its digital value at 2000H.

$$10+10=20$$

### Unit-IV

7. (a) Draw the Interfacing  $8 \times 8$  Matrix Keyboard to Port 1 and Port 2 of 8051 microcontroller. Write ALP to read the key pressed from keyboard and store the key code at memory location 2000 H.

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