

Roll No. ....

Total Pages : 03

**BT-5/D-18**  
**MICROCONTROLLERS**  
**Opt.-I**  
**ECE-415-E**

**37012**

Time : Three Hours]

[Maximum Marks : 100

**Note :** Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

**Unit I**

1. (a) What is Microcontroller ? Discuss different applications of microcontrollers. 10  
 (b) List the different on-chip resources available in microcontroller and explain why microcontrollers are true computer on chip ? 10
2. Compare various features of 4 bit, 8 bit, 16 bit and 32 bit microcontrollers. Discuss their applications. 20

**Unit II**

3. Discuss briefly functions of each pin in pin configuration diagram of 8051MC. 20

(3-56/5) L-37012

P.T.O.

4. Describe the functions of the following Internal units :

- |                 |               |
|-----------------|---------------|
| (a) Registers   | (b) PSW       |
| (c) RAM         | (d) Stack     |
| (e) Oscillator. | <b>5×4=20</b> |

**Unit III**

5. (a) What is meant by term “addressing mode” ? Explain the types of addressing modes supported by the 8051 with suitable examples. 10  
 (b) Compare program, routine and interrupt service routine. <http://www.kuonline.in> 10
6. (a) If A = 35 H and CY = 1 before execution of the following instructions. Write a program for each RL, RR, RLC and RRC instructions to rotate three times the content of A and also write content of A register and carry status after execution of program. 10  
 (b) Describe different types of the data transfer instructions in 8051. Explain the differences between the MOV, MOVC and MOVX instructions. 10

L-37012

2

#### **Unit IV**

7. Explain, how to Interface  $16 \times 2$  LCD Module with the 8051 microcontroller and develop a program to display message "HI" at the beginning of the first line ?     20
8. Explain the operation, programming and Interfacing diagram of DAC with 8051 MC.     20

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