

Roll No.

Total Pages : 3

BT-7/D-12

8712(R)**MICROCONTROLLERS****Paper-ECE-415E**

Time Allowed : 3 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 do you understand by embedded systems? Give some real life examples of embedded system. 4
- (b) What are the differences between the microcontroller and microprocessor. 8
- (c) Discuss the applications of microcontrollers in detail. 8
2. Discuss the 4-bit, 8-bit, 16-bit and 32-bit microcontrollers. 20

UNIT-II

3. (a) Discuss the 8051 architecture with a neat diagram. 12
- (b) Discuss the memory structure of 8051. 8

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4. (a) Describe the different modes of operation of timers in 8051. 8
- (b) Explain the Timer/Counter functional unit of Microcontroller 8051 with relevant diagrams. 12

UNIT-III

5. (a) Write the 8051 instructions for the following operations : (Any six) 2×6=12
 - (i) Place the number 3Bh in internal RAM locations 30h to 32h.
 - (ii) Set the SP at the byte address just above the last working register address.
 - (iii) Copy the contents of DPTR to registers R0(DPL)
 - (iv) R1(DPH).
 - (v) Exchange both low nibbles of R0 and R1.
 - (vi) Copy the data on the pins of port 2 to the port 2 latch. http://www.kuonline.in
 - (vii) Store the contents of RAM location 20h at the address contained in RAM location 08h.
- (b) Explain the various addressing modes of 8051 in detail. 8
6. (a) Code the following problem in three ways :
Place any number in internal RAM location 3Ch and increment until the number equals 3Ah. 12
- (b) Write 8051 ALP to read data from port 1 when negative edge triggered at INT0 and supply the data to port 2 by masking the upper 4 bits. 8

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UNIT-IV

7. (a) Discuss the interfacing of ADC and DAC with 8051. 12
(b) Discuss the serial data communication Mode 1. 8
8. (a) With a neat circuit diagram, explain, how a 4×4 keypad is interfaced with 8051 microcontroller and write 8051 ALP for keypad scanning. 12
(b) Discuss the serial data communication Mode 2. 8

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