

C028513(028)

B. Tech. (Fifth Semester) Examination, Nov.-Dec. 2021

AICTE (New Scheme)

(Elect., Tele comm. Engg. Branch)

MICROCONTROLLER and EMBEDDED SYSTEM

Time Allowed : Three hours

Maximum Marks : 100

Minimum Pass Marks : 35

Note : Attempt all questions. Part (a) is compulsory and carries 4 marks. Attempt any two parts from (b), (c) and (d) of each carries 8 marks.

Unit-I

1. (a) Define the term microcontroller. 4
- (b) Explain Addressing mode of 8051. 8
- (c) Explain internal RAM of 8051 microcontroller. 8

[2]

- (d) Describe the block diagram of microcontroller. 8

Unit-II

2. (a) Describe TMOD Register in 8051. 4
- (b) Describe mode 2 programming steps in 8051 for programming timer. 8
- (c) Assuming that XTAL = 11.0592 MHz, write a program to generate a square wave of 2kHz frequency on pin P 1.5. 8
- (d) Explain interrupt structure in 8051. 8

Unit-III

3. (a) Describe serial and parallel data transfer. 4
- (b) Explain the purpose of MAX232 driver. 8
- (c) Describe 8 bit SCON register in detail. 8
- (d) Write a program for the 8051 to transfer "YES" serially at 9600 baud, 8-bit data, 1 stop bit, do this continuously. 8

Unit-IV

C028513(028)

[3]

4. (a) What is $\overline{\text{PSEN}}$, $\overline{\text{RD}}$ and $\overline{\text{WR}}$ signal. 4
- (b) Interface 8K*8 data ROM with 8051. 8
- (c) Describe stepper moter interfacing with 8051. 8
- (d) Describe interfacing of ADC 0804 with 8051. 8

Unit-V

5. (a) What is Embedded system? 4
- (b) Explain characteristics of embedded system. 8
- (c) Explain the design challenges in embedded system. 8
- (d) Discuss embedded system with real life example. 8

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