

Roll No.....

Total No. of Questions : 09]

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Paper ID [EC306]

(Please fill this Paper ID in OMR Sheet)

B.Tech. (Sem.- 6th)

MICROCONTROLLERS & EMBEDDED SYSTEMS (EC-306)

Time : 03 Hours

Maximum Marks : 60

Instruction to Candidates:

- 1) Section - A is **Compulsory**.
- 2) Attempt any **Four** questions from Section - B.
- 3) Attempt any **Two** questions from Section - C.

Section - A

Q1)

(10 × 2 = 20)

- a) What is the function of ALE signal in an 8051 microcontroller.
- b) What are special function registers? Explain in brief.
- c) Define an embedded processor.
- d) What is auto-reload mode of timer programming in 8051 microcontroller.
- e) How many ways an 8051 microcontroller can be interrupted.
- f) How 8051 microcontroller can be made to work in multiprocessor configuration.
- g) What is co design? Explain with a flow-chart.
- h) Explain the architectural differences between 8051 microcontroller and an ARM processor.
- i) What are $\overline{\text{PSEN}}$ and $\overline{\text{EA}}$ signals of 8051 do?
- j) What is the function of SMOD bit in 8051 μC .

Section - B

(4 × 5 = 20)

- Q2) Explain the differences between a microprocessor and a microcontroller.
- Q3) Write a program using 8051 μ C do generate a square wave of 10 kHz.
- Q4) Explain with the help of a flow chart the complete life cycle for a product development.
- Q5) Write a program using 8051 microcontroller to interface 8051 microcontroller with an 8-bit flash A to D converter.
- Q6) Draw the schematic to interface an 8051 μ C With 16 K of ROM and 8K of RAM. You are available with 4K chips of both ROM & RAM.

Section - C

(2 × 10 = 20)

- Q7) Write a program using 8051 microcontroller to interface a 2 line x 20 characters. Also write a program sequence to display "HELLO THERE" on the LCD.
- Q8) Write a program using 8051 μ C to generate two square waves of 12 kHz. and 1 kHz simultaneously using interrupts.
- Q9) Write short notes on the following:-
- Hardware/software partitioning
 - ARM processor architecture.

