

Roll No.

Total No. of Questions : 09]

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B.Tech. (Sem. - 6th)

MICRO CONTROLLER AND EMBEDDED SYSTEMS

SUBJECT CODE : EC - 306

Paper ID : [A0319]

[Note : Please fill subject code and paper ID on OMR]

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 size of internal RAM in 8051 microcontroller.
- b) What do you mean by SCON in microcontroller 8051?
- c) What do you mean by RS1 Bit in PSW register in microcontroller 8051?
- d) Write the instruction to move value 34H into registers R5 and R6.
- e) What is operation of instruction ADD A, # n?
- f) What do you mean by bit jump?
- g) Write the instruction to determine if R5 contains value 0; if so put 60H in it.
- h) When is the T1 flag bit raised?
- i) What is the difference between V_{CC} and V_{EE} pins on the LCD?
- j) What is the difference between the MOVX and MOVC instructions?

Section - B

(4 × 5 = 20)

Q2) Explain the rotate and swap operation in microcontroller 8051.

Q3) Explain the function of following instructions :

- (a) MOVA, address.
- (b) PUSH address.
- (c) XCH A, Rr.
- (d) ANL C, B.
- (e) SETB C.

- Q4)** Write a program to clear 16 RAM locations starting at RAM address 06H.
- Q5)** For XTAL = 11.0592 MHz, find the TH1 value (in both decimal and Hex) for each of the following baud rates.
- (a) 9600
 - (b) 4800
 - (c) 1200
 - (d) 300
 - (e) 150
- Q6)** Write a program to create a square wave of 50% duty cycle on bit 1 of port 1.

Section - C

(2 × 10 = 20)

- Q7)** Assume that a 1-Hz frequency pulse is connected to input pin 3.4. Write a program display counter 0 on an LCD. Set the initial value of TH0 to -60.
- Q8)** Show the microcontroller 8051 connection to the stepper motor and explain it. Also write code program to rotate it continuously.
- Q9)** What is embedded system? Explain the various parameters of an embedded system and its significance. Also, explain the embedded system design life cycles.

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