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Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(ECE/ETE) (2011 Onwards)

B.Tech.(Automation & Robotics) (2011 & Onwards)

B.Tech.(Electronics Engg.) (2012 Onwards)

(Sem.-5)

MICROPROCESSORS AND MICROCONTROLLERS

Subject Code : BTEC-504

Paper ID : [A2106]

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Write briefly :

- a) What are embedded systems?
- b) List various 4, 8, 16 and 32-bit microcontrollers from Intel.
- c) What is the difference between Von-neuman and Harvard architecture?
- d) What are the important features of 8051?
- e) What is the difference between AJMP, SJMP and LJMP?
- f) How do you decide whether the external interrupt is level or edge triggered?
- g) Give a sequence of instructions to switch from bank-0 to bank-2 in 8051.
- h) What is the difference between EQU and DB directive?
- i) Write set of instructions to load PSW with FFH.
- j) What is the difference between bi-directional I/O and strobed I/O?

SECTION-B

2. a) Using software approach, generate rectangular wave with 200 μ sec on-period and 400 μ sec off-period at serial o/p pin of 8085.
b) Write 8051 ALP to arrange an array of ten 8-bit numbers in ascending order. Also draw flowchart.
3. Interface a 2K RAM and 4K EPROM with 8085 using suitable hardware.
4. Describe the program memory structure of 8051. How do you fetch from internal memory and external memory?
5. Discuss all the SFR's associated with Timers of 8051.
6. Discuss various sources of interrupt in 8051. Also discuss various SFR's associated with interrupts.

SECTION-C

7. Show a typical 8 bit ADC interface with 8051 explain functionality of each signal used.
8. a) Draw the internal block diagram of 8251 and explain about each block in detail.
b) Distinguish between Synchronous and Asynchronous data formats.
9. Discuss the internal circuitry and interfacing of 4-phase stepper motor to 8051. Write subroutine for stepper motor that when called will move the motor one revolution CCW. Assume 64 steps/rev. Also write delay subroutine to determine the speed of stepper motor.