Roll No. ☐☐☐☐☐☐☐☐☐☐☐☐☐   **Total No. of Pages : 02**

Total No. of Questions : 09

B.Tech. (EE) (2012 Onwards E-III)   (Sem.–7)

EMBEDDED SYSTEMS
Subject Code : BTEE-805E
M.Code : 71946

Time : 3 Hrs.   **Max. Marks : 60**

INSTRUCTION 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. **Answer briefly :**

   a. Perform Hex addition for the following :

      i) 2CH+3FH   ii) F34H+5D6H

   b. What are the main features of microcontrollers?

   c. What are the different addressing modes of 8085 microprocessor?

   d. How is the status of the carry, auxiliary carry and parity flag affected if write the following instructions?

      MOVA,#9C

      ADD A,#64H

   e. What are the factors which are to be considered for choosing PIC device?

   f. Show the status register format in PIC micro controller.

   g. What are Task Scheduling Rules?

   h. Define Debugging.

   i. How does the scheduler know when a task has become blocked or unblocked?

   j. What are simulators?

SECTION-B

2. Write a program finding the largest number in an array of 8085. Write instruction to load the 16 bit number 2050H in the register pair HL using LXI and MVI opcodes, and explain the difference between the two instructions.

3. Explain general architecture of PIC microcontrollers. What are the advantages and disadvantages of PIC microcontrollers?

4. Explain in detail Real Time Operating Systems (RTOS)? What is the meaning of tasks in RTOS? Also write in detail different types of tasks in RTOS.

5. Write short notes with proper diagrams on :

   a. Serial I/O devices

   b. Analog Interfacing with micro controllers

6. What are vectored interrupts? A program is stored in memory from 2000H to 2009H location.

   a. 2000H   LXI,SP, 1000H

   b. 2003H   PUSH H

   c. 2004H   PUSH D

   d. 2005H   CALL 2050H

   e. 2008H   POP H

   f. 2009H   HLT

      i)   What will be the contents of PC after execution of step 4.

      ii) What will be the contents of SP after execution of step 4.

      iii) Specify the contents of SP after execution of step.

SECTION-C

7. Draw and explain the pin diagram of 8085microprocessor. Explain the function of registers used in 8085 microprocessor.

8. What are assembler directives? What do you mean by compiler and cross compiler? Discuss function scheduling architecture of embedded systems.

9. What are the functions of timers in RTOS? How memory is managed in RTOS? Explain the interrupt routines in RTOS environment.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.