AQ – 2923

First Semester M. E. (EXTC) Full Time Examination

REAL TIME EMBEDDED SYSTEM

Paper - 1 ENTC 5

P. Pages : 2

Time : Three Hours] [Max. Marks : 80

Note : (1) Separate answer book must be used for each section in the subject Geology, Engineering material of civil branch and Separate answer book must be used for Section A and B in Pharmacy and Cosmetic Tech.
(2) Due credit will be given to neatness and adequate dimensions.
(3) Assume suitable data wherever necessary.
(4) Illustrate your answer wherever necessary with the help of neat sketches.

SECTION A

1. (a) Draw and explain hardware components of embedded system. 7
   (b) Explain the challenges in embedded system. 6

OR

2. (a) Draw and explain architecture of ARM-7 processor. 10
   (b) List the various data transfer instruction supported for serial and parallel communi-cation in ARM processor. 3

3. (a) How the interrupts are handled in C, Give example. What is an interrupt latenacy,what is its effect on dead line ? 10
   (b) Describe the feature of start-up code provided in C compiler. 4

OR

4. (a) Why do use infinite loop in embedded system ? What are the keywords in C to create an infinite loop. 8
   (b) What are the advantage of C language over assembly language. 6

5. Draw the interfacing of 4 x 4 keyboard matrix and 16 x 2 LCD with LPC 2148. Write the C program to read the key character from key board and display on LCD. 13

OR

6. Draw the interfacing of ADC and 16 x 2 LCD unit with LPC 2148. Write the C program to read 100 analog samples through one of the channel and display on LCD at the regular intervals. 13

SECTION B

7. (a) Explain the process of inter process task communication. 7

   (b) Describe an objective of scheduling ? What is philosophy behind scheduling algorithm ? 7

OR

8. (a) Explain in detail preemptive/non preemptive model with example. 7

   (b) Differentiate between Mutux and semaphore. 7

9. (a) Discuss the elements of various aspect of task assignment problems with the help of suitable example. 7

   (b) Explain the concept of priority inheritance/ceiling protocol. 6

OR

10. (a) Explain earliest dead-line first algorithm with example. 8

    (b) List the features of Micro OS-II system. 5

11. (a) Discuss the important aspect of designing real-time embedded system with respect to hardware-software co design issues ? 8

    (b) Explain concept of ICE. 5

OR

12. (a) Discuss the ways of computing appropriate stack sites for task. 6

    (b) Explain the concept of validation and debugging of embedded system. 7