M.E. First Semester (Electronics & Tele.) (Full Time) (C.G.S. - New)

13335 : Elective - I : Real Time Embedded System : 1 ENTC 5

P. Pages : 2 | AU - 3461

Time : Three Hours | Max. Marks : 80

* 0 3 7 8 *

Notes :
1. Due credit will be given to neatness and adequate dimensions.
2. Assume suitable data wherever necessary.
3. Illustrate your answer necessary with the help of neat sketches.
4. Use of pen Blue/Black ink/refill only for writing answer book.

SECTION - A

1. a) Describe major features of ARM processor with the help of block diagram. **10**

   b) List the various data transfer instructions supported for serial and parallel communication in ARM processor. **4**

OR

2. a) Explain the AMBA architecture available in ARM processor for interfacing on chip peripherals and memories. **8**

   b) Explain the following terms with reference to embedded systems. GPP, ASSP, AISP, SOC. **6**

3. a) Explain how THUMB instructions can be executed in ARM processors. **7**

   b) Explain the various activities carried out by STARTUP module while writing C based program for ARM processors. **6**

OR

4. a) Explain how interrupts can be initialized in ARM processor using C programming with the help of example. **7**

   b) What are preferred data types for ARM processors while writing programs in C. **6**

5. Show the interfacing of LPC 2148 microcontroller with stepper motor using suitable port signals. Write C program for driving stepper motor for specified number of steps only. **13**

OR

6. Show the interfacing of LPC 2148 microcontroller with LCD 16 x 2 using 4 bit data mode, assuming suitable port signals. Write C program for display message on LCD. **13**

SECTION - B

7. a) Describe performance measure of real time system. **7**

   b) What are different types of semaphores? Are semaphores provided by software or hardware? Justify your answer. **6**

OR

8.	a)	What the ways of computing approximate stack sizes for tasks? Explain in details.	**7**
	b)	Differentiate between static and dynamic scheduling in multiprocessor system.	**6**
9.	a)	Define priority drive algorithm. How it is classified? Describe in brief advantages of priority driven algorithm.	**7**
	b)	What is RTOS? Enlist features of µcos–II RTOS.	**7**

OR

10.	a)	Describe the concept of clock driven scheduling algorithm.	**7**
	b)	Describe the various schedulability test.	**7**
11.	a)	Explain the estimation modelling in embedded software and discuss the factors affecting estimation.	**7**
	b)	Discuss various hardware - software co-design issues in an embedded system.	**6**

OR

12.	a)	How does bottom up approach of estimation differ from top down approach? What are their strength and weakness?	**7**
	b)	Explain the concept of validation and debugging of embedded system.	**6**

****