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## ***B.Tech. Degree V Semester Examination November 2014***

### **EC 1503 EMBEDDED SYSTEMS (2012 Scheme)**

Time : 3 Hours

Maximum Marks : 100

#### **PART A (Answer ALL questions)**

(8 × 5 = 40)

- I. (a) What is an embedded system? What are the categories of embedded system?  
 (b) Write an assembly language program to generate a 2KHZ square wave using timer. Assume XTAL = 11.0592MHZ .  
 (c) How to interface an ADC to 8051?  
 (d) What are the control signals used in RS-232 DB9 connector?  
 (e) Write a short on flash memory.  
 (f) Differentiate between DRAM and SDRAM  
 (g) What are the different types of multitasking? Explain each.  
 (h) Explain the five stage process states and state transition.

#### **PART B**

(4 × 15 = 60)

- II. (a) What are the addressing modes of 8051? (8)  
 (b) Explain the RAM memory organization of 8051. (7)
- OR**
- III. (a) Write short notes on (i) reset circuit (ii) brown out protection circuit (iii) watch dog timer. (9)  
 (b) What are interrupts of 8051? How are enable and disable interrupts possible. (6)
- IV. Explain the bus architecture and protocol of 12C and SPI. (15)
- OR**
- V. How to interface LCD with 8051? Sketch a neat diagram and write a program to send a sample data form 8051 to LCD. (15)
- VI. (a) Explain the architecture of ARM processor. (10)  
 (b) Write down the features of ARM 926EJS core. (5)
- OR**
- VII. Explain the architecture and features of MSP 430. (15)
- VIII. (a) Explain task scheduling and its classification in detail. (12)  
 (b) Write a short note on device drivers of real time OS. (3)
- OR**
- IX. (a) Describe the Inter Process Communication (IPC) mechanisms at RTOS. (8)  
 (b) What is the need of task synchronization? Explain the different synchronization techniques. (7)

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