ELECTIVE - I
Embedded Systems (New)
(1212)

P. Pages : 2

Time : Three Hours   **Max. Marks : 100**

Instructions to Candidates :
1. Do not write anything on question paper except Seat No.
2. Answer sheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. Attempt **any two** sub-questions from each unit.
5. Assume suitable data if necessary.

UNIT – I

1. a) Define an Embedded system. Discuss the need of time to market in development of product whose life time is 64 weeks with delay of 6 weeks; also calculate percentage revenue loss with respect to delay entry product.   **10**

    b) Explain the following terms :

       i)   Memory Organization   **5**

       ii)   Embedded design life cycle.   **5**

    c) State & explain one of synchronous & asynchronous communication based protocol.   **10**

UNIT – II

2. a) Describe the necessity of RISC and ARM philosophy in embedded system.   **10**

    b) Explain pipeline in ARM core architecture. How it differs from any other architecture when it discussed with pipeline characteristics.   **10**

    c) i)   State and explain interrupt vector table of ARM core.   **5**

       ii)   Explain SPSR Register of ARM core.   **5**

UNIT – III

3. a) i) Explain the need of Interfacing.   **5**

   ii) Differentiate between Interfacing and SOC.   **5**

   b) Describe ROM image creation with suitable example.   **10**

   c) i) How we decide embedded communication interface to download / embed an application.   **5**

   ii) Explain the interfacing of graphics LCD.   **5**

UNIT – IV

4. a) Describe the special requirements of an embedded system in case of real time operating system and state the categories of embedded operating system.   **10**

   b) Explain overall structure of task and task execution within embedded system.   **10**

   c) i) Explain salient features of microcontroller operating system version – 2.   **5**

   ii) Explain the Rate monotonic Analysis for priority assignment of task.   **5**

UNIT – V

5. a) Discuss "Why Embedded Linux" Explain configuration & booting of an embedded Linux Kernel.   **10**

   b) Describe various debug techniques.   **10**

   c) i) What is VFS? Explain its flow.   **5**

   ii) Discuss Linux file system.   **5**

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