

Con. 6943-11.

(REVISED COURSE)

MP-5173

(3 Hours)

[Total Marks : 100

- N.B. :** (1) Question No.1 is **compulsory**.
 (2) Answer any **four** of the remaining **six**.
 (3) Draw **neat** diagram and assume suitable data wherever **required**.

- Q.1 a) Explain Task and Task states. 5
- b) Explain Embedded memories. 5
- c) Differentiate between Object Oriented and Procedure language. 5
- d) Explain SPI interface. 5
- Q.2 a) Design a FSM (Finite State Machine) for a simple elevator control system. 10
- The building has three total floors (G+2). Each floor has a call button and there are three buttons inside the elevator to choose the desired floor. Discuss the operation of the system through the FSM.
- b) What is bounded and unbounded priority inversion problem? Explain with a suitable example what is Priority Inheritance protocol? 10
- Q.3 a) Discuss various types of Semaphore in detail. 10
- b) Explain Waterfall model of embedded software development. 10
- Q.4 a) Explain operating modes of ARM7 processors. 10
- b) Briefly explain Exceptions of ARM7. 10
- Q.5 a) Explain address space (Memory map) of MSP 430 10
- b) Explain basic clock model of MSP 430. 10

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Q.6 a) A real time program has three tasks with following characteristics:-

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	Priority	Period	CPU time
T1	1	6	2
T2	2	18	14
T3	3	36	6

Determine whether the program will meet its deadline if scheduled according to priorities and with pre-emption.

b) Explain in detail Mutex, Pipes, Queue and Mailboxes.

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Q.7 Write short note on any 4

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- a) Interprocess communication
 - b) Programming models
 - c) Digital signal controllers
 - d) Black box and White box testing
 - e) Difference between RS232 and RS 485.
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