

Seat No.	
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**B.E. (Computer Science and Engineering) (Semester-VIII) (Old)  
(Pre-Revised) Examination, November- 2017**

**REAL -TIME OPERATING SYSTEMS**

**Sub. Code : 49449**

**Day and Date : Friday, 03-11-2017**

**Total Marks : 100**

**Time : 10.00 a.m. to 1.00 p.m.**

- Instructions :**
- 1) Solve any Three questions from each section.
  - 2) Figures to the right indicate full marks .

**SECTION-I**

- Q1) a)** Define real time systems. What are different types of real time systems. State one example of each. **[8]**
- b) Explain events and determinism in detail in context with real time systems. **[8]**
- Q2) a)** Explain with block diagram how interrupts are handled using programmable interrupt controller. **[8]**
- b) Explain different memory technologies. **[8]**
- Q3) a)** Explain the role of kernel in OS. **[8]**
- b) What are Mailboxes? How it can be used to implement semaphore in RTOS. **[8]**
- Q4) Write a note on (any three)** **[18]**
- a) POSIX
  - b) Cyclic Executives
  - c) Timers
  - d) Priority Inversion

**SECTION-II**

- Q5)** a) Explain requirements validation and review in real time system design. [8]  
b) With block diagram explain requirements engineering process for real - time system. State different types of requirements. [8]
- Q6)** a) Compare object-oriented languages and procedural languages. [8]  
b) What is need of metrics? Explain McCabe's metric. [8]
- Q7)** a) Draw and explain architecture of RTLinux. [8]  
b) What is need of cost estimation? How it is done using COCOMO model? [8]
- Q8)** Write a note on-(any three) [18]  
a) State Charts  
b) LOC  
c) Petri nets  
d) Task synchronization in RTLinux

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