USN | | | | | | | | | | |

10EC126

M.Tech. Degree Examination, December 2011
Real Time Operating System

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions.***

1 a. Compare soft and hard real time service utilities. **(08 Marks)**
b. With diagram, explain the internal and external memory fragmentation. **(06 Marks)**
c. Write any six key features that an RTOS should have. **(06 Marks)**

2 a. Explain the RMLUB, with suitable examples. **(10 Marks)**
b. Describe the two algorithms for determination of N and S feasibility. **(10 Marks)**

3 a. Explain the worst–case execution time of a service. **(10 Marks)**
b. Explain the following :
i) Shared memory
ii) Flash filesystems **(10 Marks)**

4 a. Explain the deadlock and livelock. **(08 Marks)**
b. Suggest the solutions to avoid unbounded priority inversion. **(08 Marks)**
c. How missed deadlines can be handled in soft real time services? **(04 Marks)**

5 a. Describe the different software mechanisms for a RTOS system. **(10 Marks)**
b. With diagram, explain how message queue and heapbased message queue are helpful for intertask communication. **(10 Marks)**

6 a. Explain the THREE different levels of single step debugging. **(10 Marks)**
b. Explain the power–on self test and memory testing. **(06 Marks)**
c. What is application level debugging? **(04 Marks)**

7 a. Describe the basic concept of drill down tuning. **(10 Marks)**
b. Give some basic methods for optimizing code segments. **(04 Marks)**
c. Write a note on PIC 17CXX programming. **(06 Marks)**

8 a. Compare reliability and availability. Also discuss reliability with an example. **(10 Marks)**
b. Explain the basic concepts of real time services with any one example. **(10 Marks)**

* * * * *