Roll No. | | | | | | | | | | | | | **Total No. of Pages : 01**

Total No. of Questions : 08

M.Tech.(Emb.Sys) (2016 & Onwards) (Sem.–2)

REAL TIME OPERATING SYSTEM

Subject Code : MTED-202

M.Code : 74269

Time : 3 Hrs. **Max. Marks : 100**

INSTRUCTIONS TO CANDIDATES :

1. **Attempt any FIVE questions out of EIGHT Questions.**
2. **Each question carries TWENTY marks.**

Q.1 Explain paging technique for memory management. How paging is different from segmentation. How virtual memory is implemented using Demand paging technique?

Q2. What are deadlocks? What are the necessary and sufficient conditions required to occur deadlock in a system? How deadlocks can be avoided using banker's algorithm? Give suitable example.

Q3. Explain the following :

a. Process Synchronization.

b. Bounded buffer problem with the help of example.

Q4. Explain EDF, Rate -Monotonic and Fixed priority schedulers for RT-Linux.

Q5. Explain different functions (Time Management, Task Management, Interrupt handling, Memory Management, Exception handling and Task Synchronization) of Real time operating systems.

Q6. Explain different issues and challenges involved in real time computing. How we can measure the performance of the real time operating system?

Q7. a. Explain differences between process and thread. How multithreading is achieved in real time operating.

b. Discuss the tradeoff of multithreading and context switching.

Q8. Write short notes on :

a. IPC in RTOS

b. Mutual Exclusion

c. Thrashing.

d. Internal *vs.* External Fragmentation

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.