

**R16**

Code No: 134BU

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**

**B.Tech II Year II Semester Examinations, July/August - 2021**

**OPERATING SYSTEMS**

**(Common to CSE, IT)**

**Time: 3 Hours**

**Max. Marks: 75**

**Answer any Five Questions  
All Questions Carry Equal Marks**

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- 1.a) Compare protection and security in detail.
- b) Explain Time shared Operating System. [7+8]
- 2.a) What is a critical section problem? Discuss about the conditions that a solution to the critical section must satisfy.
- b) What are the advantages of Inter Process Communication? How communication takes place in shared memory environment. [7+8]
- 3.a) Write about LRU page replacement algorithm and all its variants with an example.
- b) Discuss in detail about various page table structures. [8+7]
- 4.a) Discuss the following: (i) Contiguous (ii) Linked file allocation methods.
- b) Discuss the following: (i) FCFS (ii) SSTF disk scheduling schemes. [7+8]
- 5.a) Explain the techniques used to prevent the deadlock.
- b) Explain how to recover the system from deadlock. [7+8]
- 6.a) Define Multicasting. Discuss the various functionalities of Operating Systems.
- b) Discuss UNIX operating system structure. [7+8]
7. What is Dining Philosophers problem? Discuss the solution to the Dining Philosophers problem using monitors. [15]
- 8.a) Consider a reference string  
7,0,1,2,0,3,0,4,2,3,0,3,2,1,2,0,1,7,0,1  
For a memory with three frames. Trace by applying the FIFO and LRU page replacement algorithm.
- b) What do you meant by thrashing? Suggest solutions to overcome this in virtual memory. [8+7]

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