

R16**Code No: 134BU****JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B.Tech II Year II Semester Examinations, May - 2019****OPERATING SYSTEMS****(Common to CSE, IT)****Time: 3 Hours****Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit.
Each question carries 10 marks and may have a, b as sub questions.

PART – A**(25 Marks)**

- 1.a) Define Operating systems. List the objectives of Operating System. [2]
- b) Illustrate about device controller and drivers. [3]
- c) What are the disadvantages of semaphore. [2]
- d) What is a critical section? Give example. [3]
- e) Compare internal and external fragmentation. [2]
- f) Explain first, best fit memory allocation techniques. [3]
- g) Define the terms seek time and rotational latency. [2]
- h) What are the various file accessing methods? [3]
- i) Explain safe, unsafe and deadlock state process. [2]
- j) What are the conditions used in Banker's algorithm? [3]

PART – B**(50 Marks)**

- 2.a) Explain different categories of system calls with suitable example. [5+5]
 - b) What are the functionalities of Operating Systems? Explain in detail. [5+5]
- OR**
- 3.a) Explain features of Distributed Operating System. [5+5]
 - b) What are the various components of Operating System structure? And explain simple layered approach of Operating System in detail. [5+5]
- OR**
- 4.a) Explain FIFO and Round Robin CPU scheduling algorithm. Why do we need? [5+5]
 - b) With a neat sketch explain process state diagram. [5+5]
- OR**
- 5.a) What are the criteria for evaluating the CPU scheduling algorithm? [5+5]
 - b) What is a process? Explain Process Control Block. [5+5]
- OR**
- 6.a) What is virtual memory? Discuss the benefits of virtual memory techniques. [5+5]
 - b) What are the disadvantages of single contiguous memory allocation? Explain. [5+5]
- OR**
- 7.a) Consider the following page reference string
1,2,3,4,2,1,5,6,2,1,2,3,7,6,3,2,1,2,3,6
Determine how many page faults would occur for Optimal page replacement algorithm.
Assume three frames are initially empty. [5+5]
 - b) Discuss the procedure for page fault in demand paging. [5+5]

- 8.a) Compare and Contrast Free space management and Swap space management.
b) Discuss the indexed file allocation method with an example. [5+5]
- OR**
- 9.a) Discuss various types of Disk storage attachments.
b) What are the objectives of file management system? Explain file system architecture. [5+5]
- 10.a) Explain deadlock detection algorithm with an example.
b) Explain the technique used to prevent the deadlock. [5+5]
- OR**
- 11.a) Explain about deadlock conditions and Banker's algorithm in detail.
b) Write the principles of protection? And explain the access matrix in detail. [5+5]

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