Code No: 134BU **R16**

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.
b) What are the functionalities of Operating Systems? Explain in detail. [5+5]

OR

3.a) Explain features of Distributed Operating System.
b) What are the various components of Operating System structure? And explain simple layered approach of Operating System in detail. [5+5]

4.a) Explain FIFO and Round Robbin CPU scheduling algorithm. Why do we need?
b) With a neat sketch explain process state diagram. [5+5]

OR

5.a) What are the criteria for evaluating the CPU scheduling algorithm?
b) What is a process? Explain Process Control Block. [5+5]

6a) What is virtual memory? Discuss the benefits of virtual memory techniques.
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.
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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