

Previous Question Papers:

Code No: 134BU

R16

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech II Year II Semester Examinations, November/December - 2020

OPERATING SYSTEMS

(Common to CSE, IT)

Time: 2 hours

Max. Marks: 75

Answer any Five Questions
All Questions Carry Equal Marks

1. What are system calls? Explain about the various types of systems calls used in OS. [15]
- 2.a) Explain about the services of operating system.
b) Explain the O.S Structure. [8+7]
3. Consider Five processes P1 to P5 arrived at same time. They have estimated running time 10,2,6,8 and 4 seconds respectively. Their priorities are 3,2,5,4 and 1 respectively with 5 being highest priority. Find the average turn around time and average waiting time for Round Robin(q=3) and priority scheduling algorithm. [15]
4. What is Semaphore? Give the implementation of producer-consumer problem using Semaphore. [15]
- 5.a) Explain the concept of segmentation for memory management.
b) Explain the steps involved for handling the page faults. [8+7]
- 6.a) What is fragmentation? Explain the difference between internal and external fragmentation.
b) Explain about the structure of Page Table. [8+7]
7. Consider the following disk queue with requests for I/O to blocks on cylinders 98,183,37,122,14,124,65,67 in that order, using FCFS, SCAN algorithms of the disk head is initially at cylinder 53, find the total head movement in cylinders. Also provide the necessary diagram to show the head movement for the above queue. [15]
8. What do you mean by deadlock avoidance? Explain the use of Banker's algorithm for deadlock avoidance with illustration. [15]

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech II Year II Semester Examinations, May - 2019

OPERATING SYSTEMS

(Common to CSE, IT)

R16

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 structures. 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? [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]
- 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]

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech II Year II Semester Examinations, December - 2018

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, c as sub questions.

PART- A

(25 Marks)

- 1.a) Explain the functions of operating system. [2]
- b) Explain about the abstract view of the components of a computer system. [3]
- c) Distinguish between I/O bound process and CPU bound process. [2]
- d) What are the requirements of Critical section problem? [3]
- e) What is Demand Paging? [2]
- f) Distinguish between logical and physical address space. [3]
- g) Explain about the Acyclic graph directory. [2]
- h) Explain about the Solid state disk. [3]
- i) What is Access Control? [2]
- j) Explain how to eliminate the deadlocks using resource preemption. [3]

PART-B

(50 Marks)

2. Explain how operating systems are used in a variety of computing environments. [10]

OR

- 3.a) What is operating system? Explain multiprogramming and time sharing systems. [5]
- b) Explain about the dual mode operation in OS with a neat block diagram. [5+5]
- 4.a) Explain about the Process Control Block. [5]
- b) What is Semaphore? How can we achieve the synchronization using semaphore for producer consumer problem? [5+5]

OR

- 5.a) Discuss the Peterson's solution for the race condition with algorithm. [5]
- b) What is the average waiting time and average turn around times of all processes for FCFS, SJF algorithm? [5+5]

Processes	Burst Time	Priority
P1	10	3
P2	1	1
P3	2	3
P4	1	4
P5	5	2

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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

- 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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