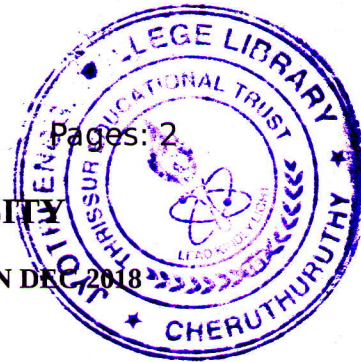


H2

H5754

Pages: 2



APJ ABDULKALAM TECHNOLOGICAL UNIVERSITY

SEVENTH SEMESTER B.TECH. (HONOURS) DEGREE EXAMINATION DEC-2018

Branch: COMPUTER SCIENCE & ENGINEERING

08CS6011 OPERATING SYSTEM DESIGN

Time:3 hours

Max.marks: 60

Answer all six questions.

Modules 1 to 6: Part 'a' of each question is compulsory and answer either part 'b' or part 'c' of each question.

Q.no.	Module 1	Marks
1.a	What are the major design criteria for an operating design?	3
	Answer b or c	
b	Describe the services provided by System Calls.	6
c	Describe the steps in Interrupt handling.	6
Q.no.	Module 2	Marks
2.a	How race condition occurs during Concurrent process execution?	3
	Answer b or c	
b	Write the solution for the IPC pattern of any two models. Explain with an example.	6
c	Illustrate how 2 Phase Locking protocol, can deal with deadlock. Provide suitable example.	6
Q.no.	Module 3	Marks
3.a	What are the different levels of memory management	3
	Answer b or c	
b	Explain how paging helps memory management? When is thrashing occurs in paged memory ?	6
c	Consider a main memory with five page frames and the following sequence of page references: 3, 8, 2, 3, 9, 1, 6, 3, 8, 9, 3, 6, 2, 1, 3. Compare the number page faults occurred in page replacement policies i) First-In-First Out (FIFO) ii) Least Recently Used (LRU) and iii) optimal.	6

Q.no.	Module 4	Marks
4.a	What are the roles and the two categories of device drivers?	3
	Answer b or c	
b	Explain Disk device driver access strategies.	6
c	Suppose a disk has 201 cylinders, numbered from 0 to 200. At some time the disk arm is at cylinder 100, and there is a queue of disk access requests for cylinders 30, 85, 90, 100, 105, 110, 135 and 145. Find the number of requests to be serviced before servicing the request for cylinder 90 when (i) Shortest-Seek Time First (SSTF) and (ii) First Come First Serve (FCFS) are being used for scheduling the disk access.	6
Q.no.	Module 5	Marks
5.a	A file system with 300 GByte disk uses a file descriptor with 8 direct block addresses, 1 indirect block address and 1 doubly indirect block address. The size of each disk block is 128 Bytes and the size of each disk block address is 8 Bytes. What is the maximum possible file size in this file system ?	4
	Answer b or c	
b	Explain the File System Implementation	8
c	What type of approach is used in UNIX to store disk block pointers ? Justify the designers choice for the same.	8
Q.no.	Module 6	Marks
6.a	Describe the design techniques of caching? Also mention what are the major implementation issues.	4
b	Explain the mechanisms for protecting Hardware and Software Resources ? Provide example for protection in any Two Operating Systems.	8
c	Discuss the Naming of Objects. Explain how the naming conflicts can be avoided, in the context of UNIX operating system ?	8