School of Computer Science

Previous Question Papers

R18

Code No: 154BR

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech II Year II Semester (Special) Examinations, January/February - 2021
OPERATING SYSTEMS
(Common to CSE, IT)

Time: 2 hours **Max. Marks: 75**

Answer any five questions All questions carry equal marks

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1.a) Mention the objectives and functions of Real-Time Embedded systems.
b) Distinguish between client-server and peer-to-peer models of distributed systems. [7+8]

2. What is a System call? Explain the various types of system calls provided by an operatingsystem. [15]

3.a) Describe the differences among long-term scheduling, short-term and medium termscheduling.
b) Describe the actions taken by a thread library to context-switch between user levelthreads. [8+7]

4. Demonstrate Round Robin CPU scheduling algorithms with suitable example. [15]

5. Write about deadlock conditions and bankers algorithm in detail. [15]

6.a) How does the signal() operation associated with monitors differ from the correspondingoperation defined for semaphores.
b) Is it possible to have a deadlock involving only a single process? Explain. [8+7]

7. Consider the reference string: 7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1 for amemory with three frames. Trace FIFO, optimal, and LRU page replacement algorithms. [15]

8. Explain File Free Space management approaches. [15]

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JAWAHARLALNEHRUTECHNOLOGICALUNIVERSITY HYDERABAD
B.TechIIYearIISemesterExaminations,July/August-2021 OPERATING SYSTEMS
(CommontoCSE,IT)

Time:3hours **Max.Marks:75**

Answer any Five
QuestionsAllQuestionsCarryEqualMarks
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1. a) What are the various components of operating system structure and explain with a neat sketch.
b) DifferentiatebetweenMultiProgramming,Multi TaskingandMultiprocessingsystems. [8+7]

2. Considerthefollowingfiveprocesseswiththelengthoftheir CPUbursttimein milliseconds.

Process	BurstTime	Priority
P1	10	3
P2	1	1
P3	2	3
P4	1	4
P5	5	2

Processesareassumedtohavearrivedattime0.
Fortheabovesetofprocessesfindtheaveragewaitingtimeandaverageturnaroundtime for each of the following scheduling algorithm using Gantt chart. Consider 1 is highest priority:
a)SJF b)NonPreemptivePriority [7+8]

3. WhatisDeadlock?Listtheconditionthatleadstodeadlock.Howdeadlockcanbe prevented. [15]

4. a) Distinguishbetweenlogicalversesphysicaladdressspace.
b) ExplainaboutVirtual MemoryManagementin detail. [7+8]

5. Describeaboutthedifferenttypesof File allocationmethods. [15]

6.a) Whatarethevariousobjectivesandfunctionsofoperatingsystems? Write
b) short note on Real Time Operating Systems. [8+7]

7.a) WhatisDemandpaging?Explain.
b) Discussabout segmentation with an example. [7+8]

8. WhatisMutualexclusion?ExplainPeterson'ssolutionformutualexclusion problem. [15]

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Code No: 154BR **R18**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech II Year II Semester Examinations, March - 2022

OPERATING SYSTEMS

(Common to CSE, IT, ITE)

Time: 3 Hours **Max. Marks: 75**

Answer any five questions All questions carry equal marks

1.a) Discuss the Functionalities of Operating Systems in detail.
b) What is a System call? Discuss major System calls of Operating Systems. [8+7]

2.a) Distinguish between the client-server and peer-to-peer models of distributed systems.
b) Discuss the various System components. [7+8]

3. List and explain the Scheduling Algorithms. [15]

4.a) Explain the terms fork, exit, wait, waitpid, exec.
b) Consider 3 processes P1, P2 and P3, which require 5, 7 and 4 time units and arrive at times 0, 1 and 3. Draw the Gant chart, process completion sequence and average waiting time for.
i) Round-robin scheduling with CPU quantum of 2 time units.
ii) FCFS [7+8]

5. Consider the following page reference string: 1, 2, 3, 4, 1, 5, 6, 2, 1, 2, 3, 7, 6, 3, 2, 1, 2,3, 6 How many page faults would occur for the FIFO replacement algorithm for 3 frames. [15]

6. Discuss how LRU and FIFO page replacement algorithms can be implemented on the following reference string when the numbers of frames are 3. Also, calculate the number of page faults. 3, 2, 1, 0, 2, 2, 1, 7, 6, 7, 0, 1, 2, 0, 3, 0, 4, 1, 5, 4, 5, 6, 7, 6, 7, 2, 4, 2, 7, 3. [15]

7. Compare the main memory organization schemes of contiguous memory allocation,pure segmentation and pure paging with respect to the following issues:
a) External fragmentation.
b) Internal fragmentation.
c) Ability to share code across processes. [15]

8. List and explain the various methods for protection and access control. [15]

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech II Year II Semester Examinations, August/September - 2022 OPERATING SYSTEMS
(Common to CSE, IT, CSBS, CSIT, ITE, CSE(SE), CSE(CS), CSE(AIML), CSE(DS), CSE(IOT), CSE(N))

Time: 3 hours Max. Marks: 75

Answer any five questions All questions carry equal marks

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1.a)	Explain about time-sharing operating systems.	
b)	Define real time system. Explain about real time operating system.	[7+8]
2.a)	Briefly explain about system calls.	
b)	Explain about the system components of OS.	[9+6]
3.a)	Discuss about Process Control Block with a neat diagram.	
b)	Explain about shortest Job First Scheduling algorithm with an example.	[7+8]
4.a)	Describe Round Robin scheduling algorithm with example.	
b)	Explain about fork and exit system calls with examples.	[8+7]
5.a)	Discuss about resuming processes within a Monitor.	
b)	Explain about deadlock detection.	[7+8]
6.a)	Describe IPC between processes on a single computer system.	
b)	Discuss about implementation of Semaphores.	[7+8]
7.a)	Describe basic method of segmentation.	
b)	Explain about performance of demand paging.	[8+7]
8.	Explain the following: a) Virtual file systems b) Indexed allocation.	[8+7]