

**III B.Tech I Semester Supplementary Examinations, February 2008
OPERATING SYSTEMS**

(Common to Computer Science & Engineering, Electronics &
Instrumentation Engineering, Information Technology, Electronics &
Control Engineering, Computer Science & Systems Engineering and
Electronics & Computer Engineering)

Time: 3 hours

Max Marks: 80

**Answer any FIVE Questions
All Questions carry equal marks**

1. Differentiate Distributed systems from Multiprocessor systems. [16]
2. What is a process? Explain different process states. [16]
3. Write the short notes on the following
 - (a) Race Condition
 - (b) Process Interaction [8+8]
4. Write the resource allocation algorithm for Deadlock detection. [16]
5. Explain about address binding for a user program and discuss multi step processing of a user program. [16]
6.
 - (a) Discuss about N- step- SCAN policy for disk scheduling.
 - (b) Explain how double buffering improves the performance than a single buffer for I/O.
 - (c) Differentiate between logical I/O and device I/O. [6+5+5]
7. Explain various techniques implemented for free space management, discuss with suitable examples. [16]
8.
 - (a) List the various techniques followed by password crackers in learning password.
 - (b) Compare active attacks with passive attacks. [8+8]

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1. Explain about the various memories hierarchy. [16]
2. What is a process? Explain different process states. [16]
3. (a) What is the need for mutual exclusion?
(b) What is a critical resource?
(c) What is a critical section?
(d) What is starvation? [4×4]
4. Write the test for safety algorithm for Deadlock detection. [16]
5. (a) Discuss LRU-Approximation page Replacement.
(b) Consider LRU, FIFO, Optimal page replacement algorithms.
Rank these algorithms from bad to perfect according to their page fault rate.
Separate those algorithms which suffer from Belady's anomaly from those
which do not. [8+8]
6. (a) Most round-robin schedules uses a fixed size quantum. Give an argument in
favor of a small quantum. Now give an argument in favor of a large quantum.
Compare and contrast the types of systems and jobs to which the argument
apply.
(b) With an example explain shortest- Process- Next scheduling. [8+8]
7. (a) Discuss the criteria for choosing a file organization.
(b) Describe indexed file, indexed sequential file organization. [8+8]
8. (a) Give the classification of intruders. Explain each class.
(b) Comparison User-Oriented access control with data-oriented access control. [8+8]

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1. Some CPUs provide for more than two modes of operation. What are two possible uses of these multiple modes? Explain. [16]
2. What is Process Control Block? Explain its structure. [16]
3. Define monitor. What are its characteristics? [16]
4. What are the different LINUX spinlocks? Explain. [16]
5. Explain about address binding for a user program and discuss multi step processing of a user program. [16]
6. What is the difference between preemptive and non preemptive scheduling? Explain an algorithm for each scheduling type. [16]
7. (a) List and explain three blocking methods.
(b) What is the relationship between a pathname and a working directory?
(c) What criteria are important in choosing a file organization? [6+5+5]
8. (a) Discuss the three options available in Windows 2000 for requesting access.
(b) Describe the generic access of Windows 2000.
(c) How is the AES expected to be an improvement over triple DES? [6+5+5]

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1. Differentiate Distributed systems from Multiprocessor systems. [16]
2. (a) What is meant by process pre-emption? Explain with examples.
(b) What is swapping and what is its purpose? [8+8]
3. Define monitor. What are its characteristics? [16]
4. Explain about Deadlock Prevention. [16]
5. Specify the purpose of the following registers:
 - (a) base register
 - (b) limit register
 - (c) memory address register
 - (d) relocation register
 - (e) memory buffer register
 - (f) page-table base register
 - (g) page-table length register
 - (h) fence register. [8×2]
6. What is the difference between preemptive and non preemptive scheduling? Explain an algorithm for each scheduling type. [16]
7. (a) Bitmaps are not often used for main memory allocation. They are commonly used for disk space allocation. Speculate on why this is so.
(b) Give an example of an application that could benefit from operating system support for random access to indexed files. [8+8]
8. (a) Explain the flaws in one-way encryption of password strategy.
(b) Write a brief note on intrusion detection. [8+8]
