

**III B.Tech II Semester Supplementary Examinations,
November/December 2005
OPERATING SYSTEMS**

(Electronics & Instrumentation Engineering)

Time: 3 hours

Max Marks: 80

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

1. Describe the following
 - (a) Virtual Memory
 - (b) Cache Memory
 - (c) Auxiliary Memory

[5+5+6]
2.
 - (a) What is meant by process preemption?
 - (b) What is swapping and what is its purpose?
 - (c) What is the difference between process switching and context switching?
 - (d) What is the difference between an interrupt and a trap..

[4+4+4+4]
3. What are the requirements for mutual exclusion? Explain them in detail.

[8+8]
4. What are the principles of deadlock? And explain in detail the two categories of resources.

[8+8]
5.
 - (a) Another placement algorithm for dynamic partitioning is referred to as worst fit. In this case, the largest free block of memory is used for bringing in a process. Discuss the pros and cons of this method compared to first-fit and best fit.
 - (b) What is the average length of the search for worst-fit.

[12+4]
6.
 - (a) What are the criteria based on which scheduling policies are evaluated.
 - (b) Describe round robin and feedback scheduling policies.

[8+8]
7.
 - (a) What are preallocation, dynamic allocation, portion size w.r.t secondary storage management?
 - (b) Describe various file allocation methods.

[8+8]
8.
 - (a) What are the security requirements of a computer and network?
 - (b) Explain different types of threats.
 - (c) Explain the computer system assets.

[5+5+6]

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1. Explain the difference between the Cache and Main Memory with the help of its structure and operation. [8+8]
2. Discuss the attributes of the process. Describe the typical elements of process control Block. [6+10]
3. One or more producers are generating some type of data and placing these in a buffer. A single consumer is taking items out of the buffer one at a time. The system is to be constrained to prevent the overlap of buffer operations. Examine the problem and get both the incorrect and the correct solution to the infinite buffer producer / consumer problem by using binary semaphores. [16]
4. Give the conditions for deadlock and explain the methods of preventing deadlock. [8+8]
5. (a) Define Memory Management.
(b) Explain in detail the requirements that memory management needs to satisfy [4+12]
6. (a) What are the criteria based on which scheduling policies are evaluated.
(b) Describe round robbin and feedback scheduling policies. [8+8]
7. (a) Explain file system software architecture.
(b) What are the important criteria in choosing a file organization
(c) Explain the file and sequential file organization. [6+5+5]
8. Write short notes on
(a) Viruses
(b) Worms
(c) Logic bomb
(d) Trap door [4+4+4+4]

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1. With the help of neat block diagram, describe the computer components with an example [16]
2. (a) Define the following
 - i. Process
 - ii. Program
 - iii. Process control block
 - iv. Process Scheduling(b) Explain the process State Transition diagram with examples. [8+8]
3. Explain in detail all the steps involved in getting a Dekker's algorithm. [16]
4. What are the principles of deadlock? And explain in detail the two categories of resources. [8+8]
5. (a) Define Memory Management.
(b) Explain in detail the requirements that memory management needs to satisfy [4+12]
6. (a) What are the criteria based on which scheduling policies are evaluated.
(b) Describe round robin and feedback scheduling policies. [8+8]
7. Write about
 - (a) Free space management
 - (b) Reliability of a file allocation [8+8]
8. (a) How resources of a computer system protected?
(b) Explain user-oriented access control.
(c) Explain data-oriented access control. [5+6+5]

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1. Explain 2-level memory hierarchy and 3-level hierarchy. [8+8]
2. Discuss the attributes of the process. Describe the typical elements of process control Block. [6+10]
3. What are the requirements for mutual exclusion? Explain them in detail. [8+8]
4. Give the conditions for deadlock and explain the methods of preventing deadlock. [8+8]
5. (a) Discuss the process of Linking using illustrations
(b) Write about Linkage Editor.
(c) Write the steps involved in Load Time Dynamic Linking
(d) Write in brief about run time dynamic linking [4+4+4+4]
6. (a) What are the criteria based on which scheduling policies are evaluated.
(b) Describe round robbin and feedback scheduling policies. [8+8]
7. (a) Explain file system software architecture
(b) Explain the functions of a file management system with a diagram [8+8]
8. Write short notes on
(a) Viruses
(b) Worms
(c) Logic bomb
(d) Trap door [4+4+4+4]
