

Code No: 07A51504

R07**Set No. 2**

III B.Tech I Semester Examinations, May 2011

OPERATING SYSTEMS**Common to Electronics And Computer Engineering, Computer Science And
Systems Engineering****Time: 3 hours****Max Marks: 80****Answer any FIVE Questions
All Questions carry equal marks**

1. Describe the attributes of the process. Describe the typical elements of the process control block. [16]
2. Write short notes on the following:
 - (a) Viruses
 - (b) Worms
 - (c) Logic bomb
 - (d) Trap door. [4+4+4+4]
3. Differentiate between the following:
 - (a) Character-stream Vs Block Devices
 - (b) Sharable Vs Dedicated Devices
 - (c) Sequential Vs Random Devices
 - (d) Synchronous Vs Asynchronous Devices. [4+4+4+4]
4.
 - (a) Which area on the disk is called data area? How the data is stored on it?
 - (b) Explain briefly the information present in a boot record.
 - (c) What does the disk system area contain? Explain. [6+5+5]
5.
 - (a) Discuss the operating system design hierarchy with an example.
 - (b) Explain the applications of Windows NT operating system. [8+8]
6. Discuss about synchronization provided in windows OS? [16]
7. Explain file sharing and discuss about the access right and management of simultaneous access. [16]
8.
 - (a) What is the relationship between FIFO and clock page replacement algorithm?
 - (b) What is the difference between resident set management and page replacement policy? [8+8]

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1. (a) What are the different modes of Interrupt? Explain how is polling achieved?
(b) Explain about the interrupt driven I/O cycle. [8+8]
2. What is virtual memory? Explain in detail about the virtual memory with a neat diagram. [16]
3. Give the schematic view of a virtual file system and explain its functions. [16]
4. Describe how critical section problem can be solved in software approach? [16]
5. what is the need of micro-kernel architecture of OS? Describe the architecture in brief. [16]
6. (a) Discuss scheduling policies for user-level and kernel-level threads.
(b) What are the advantages of using user-level threads over kernel-level threads. [10+6]
7. (a) Describe why authentication is important for file protection.
(b) Describe the merits and demerits of performing file protection checks at the time of file open and at the time of every read and write operation. [8+8]
8. (a) What is the basic motivation behind RAID to provide non-volatile storage?
(b) Compare and contrast RAID levels 0, 1, 2, 3, 4, 5. [4+12]

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R07**Set No. 1**

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1. (a) Explain the flaws in one-way encryption of password strategy.
(b) Write a brief note on intrusion detection.
(c) Write about intruders. [8+4+4]
2. Write short notes on:
(a) deadlock
(b) starvation. [8+8]
3. (a) Explain the demand paged memory management in detail with an example.
(b) Describe about dynamic partitioning and fixed partitioning. [8+8]
4. (a) Explain how free-space is managed using bit vector implementation?
(b) Describe how disk blocks are allocated to files and how blocks are freed from files. [8+8]
5. Differentiate between the following:
(a) Thread Vs process
(b) Process switching Vs context switching. [8+8]
6. Explain the different I/O communication techniques. [16]
7. (a) Consider a hierarchical file system in which free disk space is kept in a free space list.
i. Suppose the pointer to free space is lost. Can the system reconstruct the free space list?
ii. Suggest a scheme to ensure that the pointer is never lost as a result of a single memory failure.
(b) Why are physically contiguous files faster to read?
(c) What is a FAT file System? [4+4+4+4]
8. Explain why having multiple copies of a resource does not prevent deadlocks from happening. [16]

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R07**Set No. 3**

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All Questions carry equal marks**

1. (a) Describe the layers of the Kernel.
(b) Explain the difference between micro-kernel and macro-kernel. [8+8]
2. Explain various steps involved in change of a process state. [16]
3. (a) Explain busy waiting and blocking wait?
(b) Is busy waiting always less efficient than a blocking wait? Explain. [8+8]
4. What are the different types of files? What are the tasks of the file management system? List some file system related commands in UNIX? How does OS ensure security in file system? [4+4+4+4]
5. How relocation, simple paging and simple segmentation are implemented. [16]
6. (a) Compare the throughput of SCAN and C-SCAN assuming a uniform distribution of requests.
(b) What is RAID? Explain how RAID level 5 is implemented? [8+2+6]
7. (a) What is a deadlock? Distinguish between deadlock prevention and deadlock avoidance.
(b) Three processes share 4 resource units that can be reserved and reused only one at a time. Each process needs a maximum of 2 units. Show that a deadlock cannot occur. [8+8]
8. Explain about I/O protection, CPU protection, memory protection with a neat diagram. [16]
