Code.No: **A109211901** | R09 | SET-1

II B.TECH – I SEM EXAMINATIONS, NOVEMBER - 2010
FUNDAMENTALS OF OPERATING SYSTEMS
(ELECTRONICS AND COMPUTER ENGINEERING)

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

Answer any FIVE questions
All questions carry equal marks

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1. Distinguish the terminology:
   a. Uniprogramming Vs Multiprogramming
   b. Uniprocessing Vs Multiprocessing [15]

2. a) Distinguish a program from a process.
   b) Write about *process control block* (PCB).
   c) Draw the process state diagram. [15]

3. What is meant by a *critical section*? Explain the problem of critical section (CSP) through illustrative example. [15]

4. a) Explain the partitioning-based memory management schemes.
   b) Compare the memory management in Windows with that of Linux. [10+5]

5. a) Write the deadlock detection algorithm.
   b) Illustrate the above algorithm using a typical snapshot of a system. [10+5]

6. Giving merits and demerits, explain the three disk-file allocation methods. [15]

7. What is tertiary storage? Write about its structure and implementation. [15]

8. Write about the following:
   a. Protection Vs Security
   b. Protection and Security in Windows Vs Unix [15]

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Code.No: **A109211901** | R09 | SET-2

II B.TECH – I SEM EXAMINATIONS, NOVEMBER - 2010
FUNDAMENTALS OF OPERATING SYSTEMS
(ELECTRONICS AND COMPUTER ENGINEERING)

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

Answer any FIVE questions
All questions carry equal marks
- - -

1. a) State the objectives of an operating system.
   b) Brief the functions of an operating system.
   c) Explain the various phases in the evolution of OS concepts. [15]

2. a) State and explain the types of CPU schedulers.
   b) What is meant by context-switching? [10+5]

3. a) Whether concurrency has significance in uniprocessor environments? Justify your answer.
   b) List and explain the Bernstein's concurrency conditions with examples. [5+10]

4. Write about paging, a memory management scheme, giving example, hardware diagram, and page table implementation. [15]

5. a) Write the Bankers' algorithm.
   b) Illustrate the above algorithm using a typical snapshot of a system. [10+6]

6. Giving merits and demerits, write about the file-directory structures. [15]

7. What is stable storage? Write about its implementation. [15]

8. Write about the following:
   a. Access Matrix Implementation
   b. Firewall [15]

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Code.No: **A109211901** | R09 | SET-3

II B.TECH – I SEM EXAMINATIONS, NOVEMBER - 2010
FUNDAMENTALS OF OPERATING SYSTEMS
(ELECTRONICS AND COMPUTER ENGINEERING)

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

Answer any FIVE questions
All questions carry equal marks
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1. a) Compare and contrast the concepts - buffering and spooling.
b) Is the concept of multiprogramming is necessary to support timesharing mechanism, or vice versa? Justify the answer. [8+7]

2. a) Explain the criteria for evaluation of CPU scheduling algorithms.
b) Write about the FCFS scheduling algorithm giving merits and demerits. [5+10]

3. a) State and brief the specification means of concurrent programs.
b) List the advantages and disadvantages of the above methods. [8+7]

4. Write about segmentation, a memory management scheme, giving example, hardware diagram, and segment table implementation. [15]

5. a) Explain how deadlocks are prevented?
b) What is meant by a safe sequence, and a safe state of a system?
c) Brief the deadlock recovery methods. [15]

6. a) Compare the tape-based and disk-based models for file systems.
b) What are the typical operations on directories?
c) Brief the physical directory implementation methods. [15]

7. What is a RAID? Explain the different RAID levels with neat sketches. [15]

8. Write about the following:
a. Access Matrix
b. Domain of Protection
c. Access list
d. Capability list. [15]

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Code.No: **A109211901** | R09 | SET-4

II B.TECH – I SEM EXAMINATIONS, NOVEMBER - 2010
FUNDAMENTALS OF OPERATING SYSTEMS
(ELECTRONICS AND COMPUTER ENGINEERING)

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

Answer any FIVE questions
All questions carry equal marks

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1. a) Distinguish on-line and off-line concepts of Operating Systems.
   b) Distinguish the concepts of buffering and spooling. [8+7]

2. a) Stating the optimization criteria, explain the criteria for CPU scheduling algorithms.
   b) With Gantt-chart illustration, write about Round Robin CPU scheduling algorithm. [5+10]

3. Giving syntax and implementation details, write in detail about fork-join construct. [15]

4. Compare and contrast the two memory management schemes- paging and segmentation- by establishing criteria. [15]

5. a) What is a deadlock?
   b) State and compare the various deadlock handling methods.
   c) What is a resource allocation graph? [15]

6. a) Explain the implementation of a physical directory.
   b) Write about tree-structured file-directory structure. [5+10]

7. a) With a neat sketch of functional diagram, explain the disk operation.
   b) Define the terms – Access time, Latency time and Seek time. [10+5]

8. a) Distinguish the terms:
      i. Protection Vs Security
      ii. Authentication Vs Authorization
   b) Write about *access matrix* (protection mechanism) implementation. [8+7]

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