Code No:RR220503 | RR | SET-1

B.Tech II Year - II Semester Examinations, April/May-2012
OPERATING SYSTEMS & SYSTEM PROGRAMMING
(COMPUTER SCIENCE AND ENGINEERING)

Time: 3 hours **Max. Marks: 80**

Answer any five questions
All questions carry equal marks

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1.a) Differentiate between UNIX OS and Windows OS.

b) Suppose that the following processes arrive for execution at the times indicated. Each process will run the listed amount of time. In answering the questions, use preemptive and non-preemptive scheduling and base all decisions on the information you have at the time the decision must be made.

Process	Arrival Time	Burst Time
P1	0.0	8
P2	0.4	4
P3	1.0	1

What is the average turnaround time and average waiting time for these processes with the FCFS, SJF, SRTF, Priority and RR (Time Slice = 2ms) scheduling algorithms? [16]

2.a) What is process state diagram and what do they represent?

b) What are the various processes involved in a typical context switch? Explain with a neat diagram. [16]

3.a) Compare process and a thread.

b) What are the principles of concurrency?

c) Explain how semaphores and monitors are used to achieve synchronization. [16]

4.a) Consider the following snapshot of a system

Processes	*Allocation*	*Max*	*Available*
	A B CD	*A B CD*	*A B C D*
*P*0	0 0 1 2	0 0 1 2	1 5 2 0
*P*1	1 0 0 0	1 7 5 0	
*P*2	1 3 5 4	2 3 5 6	
*P*3	0 6 3 2	0 6 5 2	
*P*4	0 0 1 4	0 6 5 6	

Answer the following questions using the banker's algorithm:
i) What is the content of the matrix *Need*?
ii) Is the system in a safe state?
iii) If a request from process *P*1 arrives for (0, 4, 2, 0), can the request be granted immediately?

b) What are the necessary conditions for deadlock occurance? [16]

5.a) What are the requirements for memory management? Explain paging technique with neat diagram.

b) Write the syntax and purpose of malloc( ), calloc( ) and free( ) system calls. [16]

6.a) What are the motivations for structuring file system hierarchically?

b) Explain briefly about Record blocking and File sharing. [16]

7. Write a short note on the following:
a) I/O Buffering b) Disk Caching c) RAID Architecture. [16]

8.a) Explain the design of a two pass assembler with relevant data structures and symbol tables associated with it.

b) What is the need of a Linker, a Loader and a Macro Processor? [16]

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Code No:RR220503 | RR | SET-2

B.Tech II Year - II Semester Examinations, April/May-2012
OPERATING SYSTEMS & SYSTEM PROGRAMMING
(COMPUTER SCIENCE AND ENGINEERING)

Time: 3 hours **Max. Marks: 80**

Answer any five questions
All questions carry equal marks

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1.a) Compare process and a thread.
b) What are the principles of concurrency?
c) Explain how semaphores and monitors are used to achieve synchronization. [16]

2.a) Consider the following snapshot of a system

Processes	*Allocation*	*Max*	*Available*
	A B C D	*A B C D*	*A B C D*
*P*0	0 0 1 2	0 0 1 2	1 5 2 0
*P*1	1 0 0 0	1 7 5 0	
*P*2	1 3 5 4	2 3 5 6	
*P*3	0 6 3 2	0 6 5 2	
*P*4	0 0 1 4	0 6 5 6	

Answer the following questions using the banker's algorithm:
i) What is the content of the matrix *Need*?
ii) Is the system in a safe state?
iii) If a request from process *P*1 arrives for (0, 4, 2, 0), can the request be granted immediately?
b) What are the necessary conditions for deadlock occurance? [16]

3.a) What are the requirements for memory management? Explain paging technique with neat diagram.
b) Write the syntax and purpose of malloc( ), calloc( ) and free( ) system calls. [16]

4.a) What are the motivations for structuring file system hierarchically?
b) Explain briefly about Record blocking and File sharing. [16]

5. Write a short note on the following:
a) I/O Buffering b) Disk Caching c) RAID Architecture. [16]

6.a) Explain the design of a two pass assembler with relevant data structures and symbol tables associated with it.
b) What is the need of a Linker, a Loader and a Macro Processor? [16]

7.a) Differentiate between UNIX OS and Windows OS.

b) Suppose that the following processes arrive for execution at the times indicated. Each process will run the listed amount of time. In answering the questions, use preemptive and non-preemptive scheduling and base all decisions on the information you have at the time the decision must be made.

Process	Arrival Time	Burst Time
P1	0.0	8
P2	0.4	4
P3	1.0	1

What is the average turnaround time and average waiting time for these processes with the FCFS, SJF, SRTF, Priority and RR (Time Slice = 2ms) scheduling algorithms? [16]

8.a) What is process state diagram and what do they represent?

b) What are the various processes involved in a typical context switch? Explain with a neat diagram. [16]

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Code No:RR220503 | RR | SET-3

B.Tech II Year - II Semester Examinations, April/May-2012
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(COMPUTER SCIENCE AND ENGINEERING)

Time: 3 hours **Max. Marks: 80**

Answer any five questions
All questions carry equal marks

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1.a) What are the requirements for memory management? Explain paging technique with neat diagram.
b) Write the syntax and purpose of malloc( ), calloc( ) and free( ) system calls. [16]

2.a) What are the motivations for structuring file system hierarchically?
b) Explain briefly about Record blocking and File sharing. [16]

3. Write a short note on the following:
a) I/O Buffering b) Disk Caching c) RAID Architecture. [16]

4.a) Explain the design of a two pass assembler with relevant data structures and symbol tables associated with it.
b) What is the need of a Linker, a Loader and a Macro Processor? [16]

5.a) Differentiate between UNIX OS and Windows OS.
b) Suppose that the following processes arrive for execution at the times indicated. Each process will run the listed amount of time. In answering the questions, use preemptive and non-preemptive scheduling and base all decisions on the information you have at the time the decision must be made.

Process	Arrival Time	Burst Time
P1	0.0	8
P2	0.4	4
P3	1.0	1

What is the average turnaround time and average waiting time for these processes with the FCFS, SJF, SRTF, Priority and RR (Time Slice = 2ms) scheduling algorithms? [16]

6.a) What is process state diagram and what do they represent?
b) What are the various processes involved in a typical context switch? Explain with a neat diagram. [16]

7.a) Compare process and a thread.
b) What are the principles of concurrency?
c) Explain how semaphores and monitors are used to achieve synchronization. [16]

8.a) Consider the following snapshot of a system

Processes	*Allocation*	*Max*	*Available*
	A B CD	*A B CD*	*A B C D*
*P*0	0 0 1 2	0 0 1 2	1 5 2 0
*P*1	1 0 0 0	1 7 5 0	
*P*2	1 3 5 4	2 3 5 6	
*P*3	0 6 3 2	0 6 5 2	
*P*4	0 0 1 4	0 6 5 6	

Answer the following questions using the banker's algorithm:

i) What is the content of the matrix *Need*?

ii) Is the system in a safe state?

iii) If a request from process *P*1 arrives for (0, 4, 2, 0), can the request be granted immediately?

b) What are the necessary conditions for deadlock occurance? [16]

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Code No:RR220503 | RR | SET-4

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Time: 3 hours **Max. Marks: 80**

Answer any five questions
All questions carry equal marks

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1. Write a short note on the following:
   a) I/O Buffering b) Disk Caching c) RAID Architecture. [16]

2.a) Explain the design of a two pass assembler with relevant data structures and symbol tables associated with it.
   b) What is the need of a Linker, a Loader and a Macro Processor? [16]

3.a) Differentiate between UNIX OS and Windows OS.
   b) Suppose that the following processes arrive for execution at the times indicated. Each process will run the listed amount of time. In answering the questions, use preemptive and non-preemptive scheduling and base all decisions on the information you have at the time the decision must be made.

Process	Arrival Time	Burst Time
P1	0.0	8
P2	0.4	4
P3	1.0	1

   What is the average turnaround time and average waiting time for these processes with the FCFS, SJF, SRTF, Priority and RR (Time Slice = 2ms) scheduling algorithms? [16]

4.a) What is process state diagram and what do they represent?
   b) What are the various processes involved in a typical context switch? Explain with a neat diagram. [16]

5.a) Compare process and a thread.
   b) What are the principles of concurrency?
   c) Explain how semaphores and monitors are used to achieve synchronization. [16]

6.a) Consider the following snapshot of a system

Processes	*Allocation*	*Max*	*Available*
	A B CD	*A B CD*	*A B C D*
*P*0	0 0 1 2	0 0 1 2	1 5 2 0
*P*1	1 0 0 0	1 7 5 0	
*P*2	1 3 5 4	2 3 5 6	
*P*3	0 6 3 2	0 6 5 2	
*P*4	0 0 1 4	0 6 5 6	

Answer the following questions using the banker's algorithm:

i) What is the content of the matrix *Need*?

ii) Is the system in a safe state?

iii) If a request from process *P*1 arrives for (0, 4, 2, 0), can the request be granted immediately?

b) What are the necessary conditions for deadlock occurance? [16]

7.a) What are the requirements for memory management? Explain paging technique with neat diagram.

b) Write the syntax and purpose of malloc( ), calloc( ) and free( ) system calls. [16]

8.a) What are the motivations for structuring file system hierarchically?

b) Explain briefly about Record blocking and File sharing. [16]

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