Code No: **R42045** **R10** **Set No. 1**

IV B.Tech II Semester Supplementary Examinations, July/Aug - 2015

OPERATING SYSTEMS

(Electronics and Communication Engineering)

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

Answer any FIVE Questions
All Questions carry equal marks

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1 a) Why an OS is called a resource allocator? How it allocates resources? [8]

b) What is system call? Explain how system programs are developed using system calls. [7]

2 a) Name five major activities of an OS with respect to process management and briefly describe why each is required. [8]

b) Explain preemptive and non-preemptive versions of SJF scheduling algorithm. [7]

3 a) Explain Peterson's solution for Critical Section Problem. [8]

b) Is busy waiting always less efficient (in terms of using process time) then a blocking wait? Explain. [7]

4 a) Consider the following reference string for a memory with three frames 7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1.Illustrate the FIFO page replacement algorithm for the above string. [8]

b) How thrashing can be detected by operating system? What is the solution for it? [7]

5 a) Explain the Bankers' algorithm for deadlock avoidance with an example. [8]

b) Write the difference between deadlock and starvation. Is starvation leads to deadlock or not? Explain. [7]

6 a) What is meant by disk formatting? What is the difference between low level formatting and high level formatting? [8]

b) Discuss about SSTF disk scheduling with an example. [7]

7 a) Explain the file system Architecture in detail. [7]

b) Write short notes on: i) Sequential file ii) Indexed file [8]

8 Write short notes on the following:
a) Viruses b) Worms c) Logic bomb d) Trap door [15]

Code No: **R42045** **R10** **Set No. 2**

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OPERATING SYSTEMS

(Electronics and Communication Engineering)

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

Answer any FIVE Questions

All Questions carry equal marks

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1	a)	What is Multiprogramming? Explain the memory hierarchy with reference to the uses, characteristics, applications and functions.	[8]
	b)	Write short notes on different types of System Calls.	[7]
2	a)	Describe the typical elements of process control block.	[8]
	b)	What problem does occur with priority scheduling? How can it be solved?	[7]
3	a)	Explain preemptive kernels and non-preemptive kernels? Also explain why anyone would favor a preemptive kernel over a non-preemptive one.	[8]
	b)	What is Critical Section problem? What are the different solutions to critical Section problem?	[7]
4		Consider the following reference string:1, 2, 3, 4, 5, 3, 4, 1, 6, 7, 8, 7, 9, 5, 4, 5, 4, 2. How many page faults occur for each of the page replacement algorithms?	[15]
5	a)	Define Deadlock? Write an algorithm to detect the occurrence of deadlocks.	[8]
	b)	What are the difficulties that may arise when a process is roll backed as a result of deadlock?	[7]
6	a)	Describe the physical structure of Magnetic Disks and Magnetic Tapes with its merits and demerits.	[8]
	b)	Discuss about SCAN disk scheduling with an example.	[7]
7	a)	Explain the three allocation methods in file system implementation. Illustrate with proper diagram.	[8]
	b)	What are the objectives of file management systems? Explain the file system architecture.	[7]
8	a)	Explain the flaws in one-way encryption of password strategy.	[8]
	b)	Write a brief note on intrusion detection.	[7]

Code No: **R42045** **R10** **Set No. 3**

IV B.Tech II Semester Supplementary Examinations, July/Aug - 2015

OPERATING SYSTEMS

(Electronics and Communication Engineering)

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

Answer any FIVE Questions
All Questions carry equal marks

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1	a)	Explain System components and Services of OS?	[8]
	b)	With the help of simple interrupt processing block diagram, explain the interrupt processing with an example.	[7]
2	a)	Compare thread & process scheduling strategies in Windows and Linux?	[8]
	b)	Explain round robin priority scheduling algorithm with an example.	[7]
3	a)	With the help of neat examples, explain any three types of errors (using signal and wait) that can be generated easily when programmers use semaphores in correctly to solve the critical- section –problem.	[8]
	b)	Define monitor. What are its characteristics?	[7]
4	a)	Discuss contiguous memory allocation strategies.	[8]
	b)	Explain the address translation in a paging system.	[7]
5	a)	Is the deadlock problem preventable? Justify your answer with example and diagram.	[8]
	b)	What is Resource allocation graph? How Resource allocation graph can be used in the context of Deadlocks?	[7]
6	a)	What are the different types of mass storage structures? Explain.	[8]
	b)	Discuss about C-SCAN disk scheduling with an example.	[7]
7	a)	What do you understand by a file directory? Explain different directory structures.	[8]
	b)	Discuss various file allocation strategies along with their merits and demerits.	[7]
8	a)	Classify the different types of Security threats. What are the different solutions for them?	[8]
	b)	Explain different schemes for protection.	[7]

Code No: **R42045** **R10** **Set No. 4**

IV B.Tech II Semester Supplementary Examinations, July/Aug - 2015

OPERATING SYSTEMS

(Electronics and Communication Engineering)

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

Answer any FIVE Questions

All Questions carry equal marks

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1	a)	What are the services provided by an OS? Explain.	[8]
	b)	How layered approach is used in designing OS? Explain with a neat diagram.	[7]
2	a)	What are the steps performed by an OS to create new process? Explain.	[8]
	b)	Distinguish between preemptive and non-preemptive scheduling.	[7]
3	a)	Describe how the swap( ) instruction can be used to provide mutual exclusion that satisfies the bounded-waiting requirement.	[8]
	b)	Explain binary semaphore and counting semaphore.	[7]
4	a)	Explain the LRU page replacement algorithm with an example.	[8]
	b)	Describe the hardware requirements to support the segmentation.	[7]
5	a)	Explain resource allocation graph algorithm for deadlock detection with relevant diagrams.	[8]
	b)	What is Deadlock? What are the necessary conditions for deadlock?	[7]
6	a)	Explain the functions of Bootstrap Program.	[8]
	b)	Discuss about SSTF and FCFS disk scheduling with an example.	[7]
7	a)	What are the different file organization techniques? Explain.	[8]
	b)	Explain in detail about the different file attributes and file operations.	[7]
8	a)	Differentiate between protection and security.	[8]
	b)	Write short notes about password authentication and its threats.	[7]