TCS-601 9 Printed Pages : 4

Roll No. to be filled in your Answer Book

Roll No. | | | | | | | | | | | |

B. Tech. (CS) (6TH Semester) Examination, 2015

Operating System

Time: 3.00 Hrs] **[Max. Marks: 100**

Note: All questions are compulsory.

Q1. Attempt any four parts: (5×4 = 20)

(a) What is operating system? Mention the objectives and functions of operating system.

(b) Explain process control block.

(c) Describe the long term, short term and medium term schedulers.

(d) What is Multitasking and real time Operating System?

(e) Explain the term Kernel and Shell.

(f) Explain the security and protection provisions implemented in UNIX operating system.

Q2. Attempt any four parts: (5×4 = 20)

(a) Describe the preemptive and non-preemptive scheduling. Explain each type with an example.

(b) Explain segmentation in detail. Compare it with paging.

(c) What is Context switching?

(d) Discuss in detail the concept of virtual machines, with neat sketch.

(e) Discuss threading issues which are considered with multithreaded programs.

(f) Explain solutions of recovery in detail.

Q3. Attempt any two parts: (10×2 = 20)

(a) Suppose the following processes arrive for execution at the time indicated:

Process	Arrival time	Burst time
P1	0	8
P2	1	4
P3	2	9
P4	3	5

Draw the Gantt chart and calculate the average time and turn around time for the processes with SJF preemptive and SJF non-preemptive scheduling algorithm.

(b) What are the approaches that can be used for prevention of deadlock?

(c) Explain FCFS and Round Robin scheduling with suitable example.

Q4. Attempt any two parts: (10×2 = 20)

(a) What is seek time and rotational latency? Explain shortest seek time first Disk scheduling.

(b) What is thrashing? When does it occur? Explain.

(c) Why should page replacement be performed? Explain FIFO policy in detail.

Q5. Attempt any two parts: (10×2 = 20)

(a) Give a solution to dining philosopher's problem and explain.

(b) Given memory partitions of 100 KB, 500 KB, 200 KB, 300 KB, and 600 KB (in order), how would each off the first-fit, best-fit, and worst-fit algorithms place processes of 212 KB, 417 KB, 112 KB, and 426 KB (in order)?
Which algorithm makes the most efficient use of memory?

(c) Consider the following snapshot of a system:

	Allocation				Max				Available			
	A	B	C	D	A	B	C	D	A	B	C	D
P0	0	0	1	2	0	0	1	2	1	5	2	0
P1	1	0	0	0	1	7	5	0				
P2	1	3	5	4	2	3	5	6				
P3	0	6	3	2	0	6	5	2				

Answer the following questions using 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 P1 arrives for (0, 4, 2, 0) can the request be granted immediately?

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