20/12/14. Att Regular

COMP 5 – 6 (RC)

T.E. (Comp.) (Semester – V) (RC) Examination, Nov./Dec. 2014
OPERATING SYSTEMS

Duration : 3 Hours | Total Marks : 100

Instruction : *Attempt **any five** questions by Selecting at least **one** question from **each** Module.*

MODULE – I

1. a) Explain Bounded Buffer Producer consumer synchronization problem with implementation. 6

   b) Solve the following using preemptive priority based scheduling algorithm. Draw Gantt chart and calculate wait time and turn around time of each job. 5

Job No.	Arrival Time	Execution Time	Priority
J_1	1	2	3
J_2	2	4	2
J_3	2	1	1
J_4	3	2	4

   c) Explain and justify how multilevel queue scheduling different from multilevel feedback queue scheduling. 7

   d) What is critical section problem ? 2

2. a) Draw and explain Microkernal architecture. List and explain advantages of Microkernal. 7

   b) Write short note on windows threads. 5

   c) What are Monitors ? How are they different from semaphores ? Explain. 5

   d) Define essential properties of batch operating systems. 3

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MODULE – II

3. a) List different page Replacement Algorithms. Explain any two. 6

   b) Write short note on Deadlock Recovery. 6

   c) Consider following snapshot of a system and answer following questions using Banker's Algorithm. 8

      i) Compute Need Matrix

      ii) Is the system in safe state ?

      iii) Find safe sequence.

      iv) If a request from process P1 arrives for (0, 4, 2, 0) ; can the request be granted immediately.

Process	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				

4. a) Explain with an example, Belady's Anomaly. 6

   b) Explain paging as a Memory Management technique. 5

   c) What is thrashing ? How is it caused ? How can it be eliminated ? 5

   d) Write short note on Resident set Management. 4

MODULE – III

5. a) What is polling ? Explain concept of Handshaking in I/O. 5

   b) Explain how file system management is done in linux operating system. 7

c) On a disk with 200 cylinders membered from 0 – 199. Compute total head movement needed to satisfy all the requests in the disk queue. Assume that the disk is currently at track 100 and is moving in the direction of decreasing track number. The queue is FIFO order contains requests for the following :

TRACKS : 27, 129, 110, 186, 147, 41, 10, 64, 120.

Perform computation for the following scheduling algorithms. 8

i) FCFS

ii) SSTF

iii) SCAN.

6. a) Compare physical Formatting and Logical Formatting. 4

b) Describe Acyclic graph directory structure. 6

c) Explain different file access methods. 5

d) Write short note on Swap Space Management. 5

MODULE – IV

7. a) Write short notes on : 10

i) Viruses

ii) Digital Immune System.

b) Write shell program to check whether number entered by user is odd or even. 5

c) Write short note on windows security. 5

8. a) Write shell program to generate Fibonacci series upto "n" terms. 6

b) Explain shell commands given below with examples. 8

i) wc

ii) bc

iii) head

iv) cat

c) Write short notes on : 6

i) Intruders

ii) Security threats.