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RB-1884

Third Year B. C. A. (Sem. V) Examination

April / May – 2010

Paper - 504 : Operating System - II

Time : **3** Hours] [Total Marks : **70**

Instruction :

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **T. Y. B. C. A. (Sem. 5)**

Name of the Subject :

☛ **Paper - 504 : Operating System - 2**

☛ Subject Code No. : **1 8 8 4** ☛ Section No. (1, 2,.....) : **Nil**

Seat No. :

Student's Signature

1 Answer in short : (any **seven**) **14**

(i) What is the difference between deadlock and starvation?
(ii) What is non-preemptive scheduling?
(iii) Differentiate between long term and short term scheduler.
(iv) What is critical section?
(v) What do you mean by Race condition?
(vi) Explain in brief Belady's anomaly.
(vii) What is thrashing?
(viii) What do you mean by internal fragmentation?
(ix) What do you mean by swap space?
(x) List out the functions of file management.

2 Answer the following : **14**

(a) Consider the following set of process with the length of the CPU burst time given in milliseconds and priority of the processes.

Process	*Burst time*	*Priority*
p1	5	2
p2	2	1
p3	3	3
p4	3	4

Assume the sequence of process arrival is in order of p1, p3, p2, p4 all at time 0.

Compute the average waiting time for each process using FCFS, SJF, Preemptive priority and RR.

(b) Describe Banker's algorithm in detail with its advantages. 8

OR

(b) Explain Peterson's solution for achieving the Mutual exclusion. Also write necessary code for implementing it. 8

3 Do as directed : **14**

(a) Consider following page reference string :
1,2,3,4,1,6,5,6,2,1,3,7,4,2,1,3,5,7,2,1

How many page faults occur for the following replacement? Consider the memory having 4 frames is empty initially.

(i) LRU page replacement
(ii) FIFO page replacement
(iii) Optimal page replacement.

(b) Discuss paging with segmentation in multics system in detail. 8

OR

(b) List structures of page table. Discuss inverted page table. 8

4 Attempt the following : **14**

(a) What is significance of device controller ? **7**

OR

(a) Explain following directory structure : **7**

(i) Two level
(ii) Tree level
(iii) Acyclic Graph.

(b) Explain the linked allocation of disk space to files. **7**

OR

(b) Write a note on spooling.

5 Answer the following : **14**

(a) What is deadlock ? What are the necessary conditions for the deadlock ? **7**

OR

(a) Explain critical section problem. **7**

(b) Differentiate between fixed and dynamic partition schemes of memory allocation. Explain any one in detail. **7**

OR

(b) Discuss producer/consumer problem using semaphores. Also write necessary code for implementing the solution. **7**
