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# DJ-1904

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

November / December – 2007

## 504 : Operating System - II

Time : 3 Hours] [Total Marks : 70

**Instructions :**

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. V)

Name of the Subject :
☛ 504 : Operating System : II

☛ Subject Code No. : 1 9 0 4 ☛ Section No. (1, 2.....) : Nil

Seat No. :

Student's Signature

(2) Figures to the **right** indicate **full** marks.

(3) Clearly mention the options you choose.

1 Answer following question in brief : (Attempt any seven) 14

(1) What is starvation ? Difference between starvation and deadlock.

(2) List Process Management functions.

(3) What purpose does the modified bit serve in demand paging system ?

(4) Define preemptive and non-preemptive scheduling.

(5) What do you mean by virtual device ?

(6) What information needs to be saved when context switching takes place ?

(7) What do you mean by cooperating processes ?

(8) What is the difference between buffering and blocking ?

(9) Define principle of Locality.

2 (a) If FIFO algorithm mistakenly replaces the page that is still in active use, then which technique is used to overcome this problem ? Explain it. 7

(b) Discuss Round Robin policy with its merits and demerits. What is the impact of the quantum of time slice on the system performance ? What criteria you should consider to decide the proper time slice ? 7

OR

(b) List four necessary conditions to occur deadlock. Explain how can you prevent deadlock by breaking any one ? (Exclude mutual exclusion.) 7

3 (a) Consider the following page-reference string : 8

1, 2, 3, 4, 2, 1, 5, 6, 2, 1, 2, 3, 7, 6, 3, 2

How many page faults would occur for the following replacement algorithms, assuming four frames ?

- LRU replacement
- Optimal replacement

Give the comparison between these two.

(b) Consider the following table : 6

| Process | Arrival time | CPU burst |
|---|---|---|
| P1 | 0.0 | 8 |
| P2 | 0.4 | 4 |
| P3 | 1.0 | 1 |

What is the average turnaround and waiting time with FCFS and SJN ?

4 (a) What do you understand by critical section problem ? Discuss Paterson's policy to solve the critical section problem. 8

(b) Contrast contiguous versus non-contiguous memory management scheme. 6

OR

(b) Explain the multilevel feedback queue algorithm for process scheduling. How it differs from the multilevel queue scheduling ? 6

5 Write short notes : (any two) 14

(a) Acyclic Graph directory structure

(b) Indexed allocation

(c) Hierarchy model of the file system.

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