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SB-1504

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

March / April – 2011

504 - Operating System - II

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

Instructions : (1)

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 :

☛ **505 - Operating System - 2**

☛ Subject Code No. : **1 5 0 4** ☛ Section No. (1, 2,.....) : **Nil**

Seat No. :

Student's Signature

(2) All questions are **compulsory**.
(3) Figures to the **right** indicate full marks.
(4) Draw figure and diagram wherever necessary.

1 Answer in short : **14**

(i) What is the difference between page and segment ?
(ii) Define Hold and Wait and Circular Wait conditions. Also find out any relation between them.
(iii) What are the merits and demerits of Lockwords ?
(iv) What is the difference between first fit and best fit algorithm ? Which one is better and why ?
(v) What information needs to be saved when context switching takes place ?
(vi) Is it possible to have a deadlock involving only one process ? Explain your answer.
(vii) What do you mean by cooperating processes ?

2 Do as Directed : **18**

(i) Explain the multilevel feedback queue algorithm for process scheduling.
(ii) Discuss Lock-Flag and Alternating policy to solve the Critical-Section Problem.

(iii) Discuss Round Robin policy with its merits and demerits. What is the impact of the quantum of time slice on the system performance ?

OR

(iii) List four necessary conditions to occur deadlock. Explain how you can prevent deadlock by breaking any one ? **6**

3 Write short notes : (any **three**) **18**

(i) Disk space management
(ii) Second chance (SC) Algorithm
(iii) Message passing system
(iv) Critical region problem.

4 Do as directed : **10**

(i) Consider the following table : **10**

Process	Arrival Time	CPU burst(ms)
P1	0.0	10
P2	0.4	1
P3	1.0	2
P4	1.5	1
P5	2.0	5

Draw the time line (Gantt) charts illustrating the execution of these processes using SJF, SRT,RR (quantum=1) scheduling.
What is the turnaround time of each process for each of the scheduling algorithms ?

(ii) Suppose that disk drive currently serving at cylinder 112 and previous request was at 156. The queue in pending order is :

67, 125, 38, 155, 100, 251, 35, 110

Starting from the current head position, what is the total distance that the disk arm moves to satisfy all the pending requests for each of the following disk-scheduling algorithms ?

- SSTF
- SCAN.

5 Do as Directed : **10**

(i) Explain tree level directory structure.

OR

(i) Discuss Paterson's algorithm.

(ii) What is safe state ? Explain Banker's algorithm to avoid deadlock.
