



SB-1504
Third Year B. C. A. (SEM. V) Examination
March / April – 2011
504 - Operating System - II

Time : Hours]

[Total Marks : 70

Instructions : (1)

<p>नीचे दृशावेव निशानीवाणी विगतो उत्तरवाडी पर अवश्य लपवी. Fillup strictly the details of signs on your answer book.</p> <p>Name of the Examination : ☛ T. Y. B. C. A. (SEM. 5)</p> <p>Name of the Subject : ☛ 505 - Operating System - 2</p> <p>☛ Subject Code No. : 1 5 0 4 ☛ Section No. (1, 2,.....): Nil</p>	<p>Seat No. : <input type="text"/><input type="text"/><input type="text"/><input type="text"/><input type="text"/><input type="text"/></p> <div style="border: 1px solid black; border-radius: 15px; height: 80px; display: flex; align-items: center; justify-content: center; margin-top: 10px;">Student's Signature</div>
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- (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. **6**
Explain how you can prevent deadlock by breaking any one ?

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 :

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(i) Explain tree level directory structure.

OR

(i) Discuss Paterson's algorithm.

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