HD-3572

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

March / April - 2018

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 :
☛ OPERATING SYSTEM - 2

☛ Subject Code No. : 3 5 7 2 ☛ Section No. (1, 2.....) : NIL

Seat No. :

Student's Signature

1 Answer in short : (Any Seven) 14

(1) What is compaction? Why is it required?

(2) What is race condition? How to avoid race condition?

(3) Explain Belady's anomaly.

(4) Define preemptive scheduling and non-preemptive scheduling.

(5) What is the difference between first-fit, worst-fit and best-fit? Which is better? Why?

(6) What is internal fragmentation? How does it differ from external fragmentation?

(7) Define turnaround time and throughput time.

(8) What is a solution of dynamic storage allocation problem?

2 Do as directed : 14

(A) Consider the following reference string: 7

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

How many page faults will occur for the following replacement policies? Consider the memory is empty initially and memory is having 3 frames.

(i) FIFO page replacement algorithm
(ii) OPT page replacement algorithm
(iii) LRU page replacement algorithm Also explain which algorithm' is better and why?

(B) Describe how paging can be implemented by using cache memory. 7

OR

Explain memory management technique of segmentation.

3 Write short notes : (Any **Three**) 18

(1) Inter Process Communication
(2) Second Chance Algorithm
(3) Deadlock Prevention
(4) Static Partitioning Scheme.

4 Do as directed : 14

(A) Consider the following set of process, with the length CPU-burst time given in milliseconds: 7

Process	Burst time	Priority
P1	5	4
P2	8	1
P3	7	2
P4	3	1
P5	4	3

The processes are assumed to have arrived in following order: P1, P2, P3, P4, P5 all at time zero

(i) Draw Gantt chart to illustrate execution of process using following algorithm:
- FCFS scheduling
- RR scheduling (Quantum = 2)
- Priority based scheduling

(ii) Calculate turnaround time and waiting time of each process in each scheduling algorithm.

(B) What is semaphore? Explain producer-consumer problem using semaphores. 7

OR

Explain Critical Section Problem. Discuss Peterson's solution for achieving the Mutual exclusion.

5 Answer the following : (Any **Two**) 10

(1) What is a scheduler? Explain different types of Schedulers.

(2) Explain Banker's Algorithm to avoid deadlock.

(3) Write steps to handle page faults.
