

97669

BCA 3rd Semester (Full & Re-appear)

Examination, December-2024

Introduction to Operating System

Paper : BCA-201

Time allowed : 3 hours]

[Maximum marks : 80

Note : Question No. 1 is compulsory. Attempt four questions by selecting one question from each unit. All questions carry equal marks.

1.
 - (a) What is the concept of thrashing?
 - (b) What is process states diagram?
 - (c) What is Critical Section?
 - (d) What is Queue scheduling algorithm?
 - (e) What is Real-time Scheduling?
 - (f) What do you mean by free space management?
 - (g) What are Bernstein's Conditions?
 - (h) What should be page size? Justify your answer.

8×2=16

97669-P-4-Q-9(24)

[P.T.O.]

Unit-I

2. (a) What are operating system services? Discuss their significance. 6
- (b) What is an operating system? What are important characteristics of a good operating system? Also discuss the responsibilities of an operating system as a resource manager. 10
3. Differentiate between the following :
- (a) Program, process and thread 6
- (b) Multitasking and Batch processing 5
- (c) Time-sharing and Multiprogramming 5

Unit-II

4. Differentiate 'Deadlock-Avoidance', 'Deadlock-Prevention' and 'Deadlock-Detection'. What is Banker's algorithm and indicate for which of the above three the same is used? Illustrate the same through a suitable example. 16
5. What do you mean by a scheduler? What should be the performance criteria for a scheduler? Compare and contrast importance scheduling techniques. 16

Unit-III

6. (a) What is fragmentation? What are different types of fragmentation? How each of these can be overcome? Explain. 7
- (b) What is paging? How address mapping is performed in paging technique? Also enumerate the advantages and disadvantages of paging. 9
7. (a) What is memory management? Discuss objectives of memory management. 6
- (b) What is a Swapping System? Consider a swapping system in which memory of the following hole sizes in memory order, : 10K, 4K, 20K, 18K, 7K, 9K, 12K and 15K. Which hole is taken for successive requests of : 10
- (i) 12K
 - (ii) 10K
 - (iii) 9K
- for first-fit? Repeat the same for Best-Fit, Worst-Fit and Next-Fit.

Unit-IV

8. What is meant by disk scheduling? Explain why disk scheduling is necessary? Enumerate the principal differences among various disk-scheduling techniques. 16
9. What is a file-system? Give the general model of a file-system? What are the main responsibilities of a file-system? Where is file-system located in layered organization of operating system? 16