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7. (i) What is Fragmentation? What are different types of Fragmentation? How each of these can be overcome? Explain. 7
- (ii) What is paging? How address mapping is performed in paging technique? Also enumerate the advantages and disadvantages of paging. 9

Unit - IV

8. 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
9. What is meant by disk scheduling? Explain why disk scheduling is necessary? Enumerate the principal differences among various disk-scheduling techniques. 16

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B.C.A. 3rd Semester Examination,

February-2022

INTRODUCTION

TO OPERATING SYSTEM

(BCA-201)

Time allowed : 3 hours

[Maximum marks : 50

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

1. (i) What do you mean by free space management? 4
- (ii) What are Bernerstein's Conditions? 4
- (iii) What should be page size? Justify your answer. 4
- (iv) What is process states diagram? 4
- (v) What is Critical Section? 4
- (vi) What is Queue scheduling algorithm? 4
- (vii) What is Real-time Scheduling? 4
- (viii) What is the concept of thrashing? 4

4 × 2 = 16

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P.T.O.

Unit - I

- 2. (i) 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
- (ii) What are operating system services ? Discuss their significance. 6

3. Differentiate between the following :

- (i) Multitasking and Batch processing 5
- (ii) Time-sharing and Multiprogramming 5
- (iii) Program, process and thread 6

Unit - II

- 4. What do you mean by a scheduler ? What should be the performance criteria for a scheduler ? Compare and contrast important scheduling techniques. 16

- 5. 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

Unit - III

- 6. (i) What is memory management ? Discuss objectives of memory management. 6

(ii) 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 :

- (a) 12K
- (b) 10K
- (c) 9K

for First-Fit ? Repeat the same for Best-Fit, Worst-Fit and Next-Fit.