14314

B.C.A. EXAMINATION

(For Batch 2021 to 2023 Only)

(Second Semester)

OPERATING SYSTEM

BCA-24

Time : Three Hours   *Maximum Marks : 80*

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. **1** is compulsory. All questions carry equal marks.

(Compulsory Question)

1. (i) What does the Time-Sharing System include ?

   (ii) Differentiate between Logical *versus* Physical Address space.

(iii) What is a Process and Process Table ?

(iv) What are the different kinds of operations possible on Semaphore ?

(v) Define Virtual Device.

(vi) What is Buffering ?

(vii) Define Disk Reliability.

(viii) What is Directory Structure ?   8×2=16

Unit I

2. (a) What are the components of an operating system ? Differentiate between Time Sharing and Distributed Operating System.

8

(b) What is Paging ? What is Page Table ? Explain the conversion of Virtual Address to Physical Address in Paging with example.

8

3. (a) Explain the concept of Segmentation for Memory Management. Explain, why Combined Paged Segmentation is used with illustration ?

8

(b) Define memory management. What are the functions of memory management ?   8

Unit II

4. (a) Define Process scheduling and Operation on process CPU Scheduling. 8

   (b) Define the following : 8

   (i) Critical Section

   (ii) Race Condition.

5. (a) Explain the Process State transition diagram. Explain Process Control Block (PCB). 8

   (b) Discuss about semaphores. 8

Unit III

6. (a) What is Deadlock ? What are the necessary conditions for deadlock ? What do you mean by deadlock prevention and avoidance ? 8

   (b) Explain the use of Banker's Algorithm for Deadlock Avoidance with illustration. 8

7. (a) What is Device Management and different types of Device Management Techniques ? 8

(b) Explain the various Disk Scheduling Algorithms with illustration. 8

Unit IV

8. (a) Define file concepts and access methods. 8

(b) Difference between Logical file system and Physical file system. 8

9. (a) Define functions of system and file protection mechanisms. 8

(b) How Access Control List can be useful for managing file access ? 8

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