

11. Give the definition of the Operating System. Also discuss the classification of operating system.
12. What is Critical Section Problem ? Explain its general structure. Write some hardware instruction used for solving critical section problem.
13. Explain briefly the role of the Compiler, Loader and Memory Management Hardware in the following Address Binding Schemes :
- (a) Compile Time Binding
  - (b) Load Time Binding

## **BCA-07/DCA-102**

**December – Examination 2022**

### **BCA (Part-II)/DCA Examination**

**Operating System-I**

**Paper : BCA-07/DCA-102**

*Time : 3 Hours ]*

*[ Maximum Marks : 70*

*Note :-* The question paper is divided into three Sections A, B and C. Write answers as per the given instructions.

**Section-A**

**2×7=14**

**(Very Short Answer Type Questions)**

*Note :-* Answer all questions. As per the nature of the question delimit your answer in one word, one sentence or maximum up to **30** words. Each question carries 2 marks.

1. (i) What are the benefits of Multi-programming ?
- (ii) Name Several Authentication Methods.
- (iii) Give any *four* differences between CUI and GUI.

- (iv) What is the use of Page Table ? Give an example.
- (v) What is a System Call ? Give some examples of system calls.
- (vi) What do you mean by 'Compaction' with respect to Fragmentation ?
- (vii) List the necessary conditions to Deadlock.

**Section-B** **4×7=28**

**(Short Answer Type Questions)**

**Note :-** Answer any *four* questions. Each answer should not exceed **200** words. Each question carries 7 marks.

- 2. Can a multi-threaded system using many user-level threads achieve better performance on a multi-processor system than on a single processor system ? Justify your answer.
- 3. What is Thrashing ? How is thrashing prevented ? Explain with example.
- 4. What is need for Security ? Explain principles of security in detail.
- 5. Write short note on Demand Paging.

- 6. What is Race Condition ? Explain different race condition properties with suitable examples.
- 7. What is the 'Need-to-know' principle ? Why is it important for protection system to adhere to this principle ?
- 8. Differentiate between RMI and RPCs.
- 9. What is Memory Fragmentation ? What are the Internal and External Memory Fragmentations.

**Section-C** **2×14=28**

**(Long Answer Type Questions)**

**Note :-** Answer any *two* questions. You have to delimit your each answer maximum up to **500** words. Each question carries 14 marks.

10. For the given information :

Process Number	Arrival Time	CPU Burst
1	0	10
2	1	2
3	2	3
4	3	1

Compute the waiting and turn-around time for FCFS and SJF scheduling algorithm.