

# BCA-07/DCA-102

## December - Examination 2025 BCA (2<sup>nd</sup> Year)/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

7×2=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 do you mean by direct memory access?
- (ii) State producer consumer problem.
- (iii) What is Batch Processing?
- (iv) Give any two examples of system call.
- (v) What do you mean by sockets? Give an example.
- (vi) Give any four differences between peer to peer computing and client server computing.
- (vii) Explain the CPU-bound and input output bound jobs in short.

### 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. Explain context switching with an example.
3. Differentiate between multiprogramming and multiprocessing OS.
4. What is the need for security? Explain the principles of security in detail.
5. What is a thread? Discuss various types of multi-threading models.
6. Explain the encryption and decryption mechanism with suitable examples.
7. Explain the memory hierarchy organization with a diagram.
8. Discuss the classification of operating system in detail.
9. What is a race condition? Explain different ways of condition properties with suitable examples.

**(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. Write short notes on the following -
    - (a) Shared Memory System
    - (b) Message Passing System
    - (c) Sockets
    - (d) Remote Method Invocation
  11. Explain the role of the shell and kernel in an OS.
  12. Explain the various scheduling criteria. Why do we need a scheduling algorithm? Explain with suitable examples.
  13. Explain process synchronization. How Semaphores are used for process synchronisation? Give an example.
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