

**BCA-07/DCA-102**  
**December – Examination 2021**  
**BCA (Part II)/DCA Examination**  
**Operating System–I**  
**Paper : BCA-07/DCA-102**

*Time : 1½ Hours ]*

*[ Maximum Marks : 70*

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

**Section–A**

**4×3½=14**

**(Very Short Answer Type Questions)**

*Note* :- Answer any *four* questions. As per the nature of the question delimit your answer in one word, one sentence or maximum up to **20** words. Each question carries 3½ marks.

1. (i) Differentiate between Hard Real Time and Soft Real Time OS.

- (ii) What is Thread ? How is it different from process ?
- (iii) Define Operating System. Give the different services provided by OS.
- (iv) Name an algorithm for page replacement.
- (v) What is Paging ? With example explain Page Offset.
- (vi) What is CUI (Character based User Interface) ?
- (vii) How System Threats work ? Name *two* system threats.
- (viii) What is Kernel ? Why Kernel is important in OS ?

**Section–B** **4×14=56**

**(Short Answer Type Questions)**

*Note* :- Answer any *four* questions. Answer should not exceed **200** words. Each question carries 14 marks.

- 2. What do you mean by File Attributes ? Explain the various operations that can be done of files.

- 3. What is Process ? Briefly discuss various process states.
- 4. How semaphores are used for process synchronization ? Give an example.
- 5. List differences between User Level Threads and Kernel Level Threads.
- 6. What is Access List ? Give comparison between Access List and Capabilities List.
- 7. What is Memory Fragmentation ? What are the Internal and External Memory Fragmentations ? Can we control fragmentation ? If yes, then give a method.
- 8. Explain the various Scheduling Criteria. Why we need scheduling algorithm ?
- 9. What do you understand by Safe and Unsafe State ? Explain Banker's algorithm with necessary data structure for deadlock avoidance.