

BCA-07/DCA-102
June - Examination 2017
BCA Pt. II/DCA Examination
Operating System - I
Paper - BCA-07/DCA-102

Time : 3 Hours]

[Max. Marks :- 100

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

Section - A

10 × 2 = 20

(Very Short Answer Questions)

Note: Answer **all** questions. Limit to 30 words. All carries 2 marks.

- 1) (i) What is Kernel?
- (ii) What do you mean by Batch Processing?
- (iii) Define the essential properties of Real time operating system.
- (iv) State dining philosopher's problem.
- (v) What is the "degree of multiprogramming"?
- (vi) Name an algorithm for deadlock avoidance.
- (vii) What is polling?
- (viii) What is safe state (with respect to deadlock)?

- (ix) When does page fault occurs?
- (x) State Belady's anomaly.

Section - B**4 × 10 = 40**

(Short Answer Questions)

Note: Answer **any four** questions. Each answer should not exceed 200 words. Each question carries 10 marks.

- 2) What is an operating system? What are the services offered by the operating system?
- 3) Explain system call. How does it differ from function call.
- 4) What is race condition? Explain critical section problem. How are semaphores used for solving critical section problem?
- 5) Differentiate user-level threads and Kernel level threads.
- 6) What is the deadlock? What are the necessary conditions to occur the deadlock? What are the various methods to recover from the deadlock?
- 7) Write short note on file access control.
- 8) What is the need of security in OS? Explain any three program and system threads to OS.
- 9) Compute number of page fault for LRU and FIFO and optimal page replacement algorithms. The given page trace is 7, 5, 1, 2, 7, 4, 5, 4, 5, 4, 5, 7 (12 pages). The job is allowed 3 blocks in primary memory.

Section - C**2 × 20 = 40**

(Long Answer Questions)

Note: Answer **any two** questions. Limit your answer to 500 words. All carries 20 marks each.

- 10) Explain the architecture of operating system. Differentiate process and program. Also describe PCB and its contents.
- 11) What is Socket? Illustrate the working of Remote Procedure call.
- 12) Discuss the need of scheduler in OS. Consider the following set of process with the arrival time and CPU burst time given in milliseconds.

Process	Arrival time	CPU burst time
P1	0	8
P2	1	4
P3	2	9
P4	3	5

What is average waiting time for processes with preemptive shortest job first scheduling?

- 13) Explain various memory allocation scheme : first fit, next fit, worst fit. What do you understand by memory fragmentation?
