BCA-07/DCA-102

December - 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 $10 \times 2 = 20$

(Very Short Answer Questions)

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

1) (i) Differentiate between hard real time and soft real time OS.

(ii) What is thread?

(iii) Define Operating System.

(iv) Name an algorithm for page replacement.

(v) Define page offset.

(vi) What is CUI (Character Based User Interface)?

(vii) Name two system threats.

(viii) What is Kernel?

(ix) State producer consumer problem.

(x) What is critical section problem.

Section - B

$4 \times 10 = 40$

(Short Answer Questions)

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

2) What do you mean by file attributes?

3) Briefly discuss various process states.

4) What are benefits of multiprogramming?

5) List differences between user level threads and kernel level threads.

6) Give comparison between access list and capabilities list.

7) Explain semaphore and its different types.

8) Explain various scheduling criteria. Why we need scheduling algorithm?

9) Discuss the principle behind Trojan horse.

Section - C $2 \times 20 = 40$

(Long Answer Questions)

Note: Answer **any two** questions. You have to delimit your each answer maximum upto 500 words. Each question carries 20 marks.

10) Given following information.

Process no.	Arrival time	CPU Burst
1	0	10
2	1	2
3	2	3
4	3	1
5	4	5

(i) Compute waiting and turnaround time for FCFS and SJF scheduling algorithms.

(ii) Which of the schedules in part (a) results in the minimal average waiting time (over all processes)

11) Explain process Synchronization. How semaphores are used for process synchronization? Give an example.

12) What you understand by safe and unsafe state? Explain banker's algorithm with necessary data structure for deadlock avoidance.

13) Explain briefly the role of the compiler, loader, and memory management hardware in the following address schemes:
(i) Compile time binding
(ii) Load time binding
(iii) Runtime binding