ADDITIONAL EXAM
BACHELOR OF COMPUTER APPLICATIONS (CBCS - 2018 COURSE)
B.C.A. Sem-III : SUMMER- 2022
SUBJECT : OPERATING SYSTEMS

Day : Saturday   Time : 02:00 PM-05:00 PM

Date : 15-10-2022   **S-18767-2022**   Max. Marks : 60

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N.B.

1) **Q. No. 4** is **COMPULSORY**.
2) Answer any **TWO** questions from Q. No. 1, 2, 3 in Section – **I**.
3) Answer any **TWO** questions from Q. No. 5, 6, 7 in Section – **II**.
4) Figures to the right indicate **FULL** marks.
5) Answers to both the sections should be written in **SAME** answer book.
6) Draw neat labeled diagram **WHEREVER** necessary.

SECTION - I

Q.1 Differentiate between:

   a) Online operating system and Real time operating system **(06)**
   b) Contiguous memory allocation and non – contiguous memory allocation **(06)**

Q.2 **a)** What do you mean by a system call? Explain with example. **(06)**
     b) What is the need of PCB? Where is it used? Discuss its content. **(06)**

Q.3 **a)** What do you mean by page – fault? When does a page – fault occur? Describe **(06)** the action taken by Operating System when a page fault occurs.
     b) Discuss the need and the characteristics of semaphore. **(06)**

Q.4 Write short notes on any **THREE** of the following: **(12)**

   a) Interrupt handler
   b) File attributes
   c) Mutual exclusion
   d) Clock page replacement algorithm
   e) File system security

SECTION - II

Q.5 Consider following case: **(12)**

Processes	In time (am)	Burst time (min.)
P1	10.00	7
P2	10.03	2
P3	10.05	3
P4	10.06	1

Calculate average turnaround time and average waiting time in case of:
a) SJF   b) SRTN

Q.6 Consider the Hard disk having 100 tracks, numbered 0 to 99. Currently head is **(12)** on track number 34 and moving inside. If the queue of requests is kept in the FIFO order
           35, 17, 78, 10, 5, 33, 46, 23, 89, 48, 7, 45, 65
Calculate total time required to move all these tracks, using following disk scheduling algorithms. Consider Seek time = 0.5 sec.
     i)   FCFS   ii) SSTF

Q.7 What is deadlock? What are the four necessary conditions for a deadlock to **(12)** occur? How deadlocks are detected and recovered?

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