

**B.C.A. (2010 Course Sem- III : SUMMER - 2019)**  
**SUBJECT: OPERATING SYSTEM CONCEPTS**

Day: Tuesday  
Date: 16/04/2019

**S-2019-2093**

Time: 02.00 PM TO 05.00 PM  
Max. Marks: 70

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**N.B.:**

- 1) **Q. No. 1 is COMPULSORY.**
  - 2) Attempt **ANY FOUR** questions from **Q. No. 2 to Q. No. 7.**
  - 3) Figures to the right indicate **FULL** marks.
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**Q.1** Consider the following case. **(14)**

Processes	In time	Run time (min.)
P <sub>1</sub>	7.00	9
P <sub>2</sub>	7.05	3
P <sub>3</sub>	7.06	4
P <sub>4</sub>	7.09	3

Calculate average waiting and turnover time in case of:

- a) FCFS
- b) Shortest Job First
- c) Shortest Remaining Time Next

**Q.2** Differentiate between: **(14)**

- a) Online operating systems and Real time operating systems.
- b) Implicit tasking and Explicit tasking.
- c) Memory management with bit map and memory management with linked list.

**Q.3** Explain the terms: **(14)**

- a) System calls
- b) Process relationships
- c) Process control block

**Q.4** What do you mean by scheduler? Explain need and types of schedulers. **(14)**

**Q.5** Describe Busy-Wait implementation of semaphore. **(14)**

**Q.6** Explain various security mechanisms associated with file system. **(14)**

**Q.7** Write short notes on **any TWO** of the following: **(14)**

- a) Interrupt Handler
- b) Conditional critical region
- c) Virtual memory

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