# B.C.A. (2010 COURSE SEM- III : SUMMER - 2018

## SUBJECT: OPERATING SYSTEM CONCEPTS

Day : **Friday**
Date : **27/04/2018**

**S-2018-1728**

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

**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 set of processes with the arrival time and CPU burst time. **(14)**

| Process | Arrival time (am) | Burst time (min.) |
|---|---|---|
| $P_1$ | 6.00 | 7 |
| $P_2$ | 6.01 | 3 |
| $P_3$ | 6.07 | 1 |
| $P_4$ | 6.08 | 4 |

Calculate average waiting time and turnaround time in case of:

**a)** First come first served.
**b)** Shortest job first.

**Q.2** **a)** Differentiate between: **(07)**
**i)** Real time operating systems and online operating systems.
**ii)** Implicit tasking and explicit tasking.

**b)** Define operating system. Give the functions of it. **(07)**

**Q.3** **a)** What do you mean by process management? Give the process state transmission in brief. **(07)**

**b)** Explain the time slice scheduling algorithm with its merits and demerits. **(07)**

**Q.4** **a)** Explain the memory management with fix partitions. **(07)**

**b)** Discuss the need of virtual memory in brief. **(07)**

**Q.5** **a)** Describe the busy-wait implementation of semaphore. **(07)**

**b)** What are monitors? Illustrate the need and format of monitor. **(07)**

**Q.6** **a)** What is deadlock? Give the conditions for occurrence of deadlock. **(07)**

**b)** Explain the file system structure. **(07)**

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

**a)** DMA
**b)** Device driver
**c)** Conditional critical region

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