

Day: **Friday**  
Date: **10/11/2017**

Time: **02.00 PM TO 05.00 PM**  
Max Marks. 100

**W-2017-1610**

**N.B.**

- 1) Attempt any **FOUR** questions from Section – **I** and any **TWO** questions from Section – **II**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Both sections should be written in **SEPARATE** answer book.

**SECTION - I**

- Q.1** Differentiate between: (15)
- a) Shortest Job First and Shortest Remaining Time Next
  - b) Real Time Operating System and Online Operating System
  - c) Implicit tasking and Explicit tasking
- Q.2** Explain the following: (15)
- a) Process concept
  - b) Process state
  - c) Process control block
- Q.3** What is segmentation? What are the advantages of segmentation? Also explain segmentation with paging. (15)
- Q.4** Discuss producer-consumer problem and give the possible solutions for this problem. (15)
- Q.5** What do you mean by file system? Explain various file access methods with their merits and demerits. Also give the file structure. (15)
- Q.6** What is semaphore? Describe characteristics and queuing implementation of semaphore in detail. (15)
- Q.7** Write short notes on the following : (15)
- a) Conditional critical region
  - b) Disk space management
  - c) Demand paging

**SECTION - II**

- Q.8** What is deadlock? What are the conditions for occurrence of deadlock? How to avoid it? (20)
- Q.9** Consider the following case: (20)

Processes	Arrival time	Execution time (min.)
P1	10:00	9
P2	10:03	3
P3	10:08	4
P4	10:09	2

Calculate average waiting time and turnaround time in case of:

- a) First come first served
  - b) Shortest remaining time next
- Q.10** Consider the main memory with four page frames. Assume that all the page frames are initially empty. The pages are referenced in the order given below. (20)
- 1, 2, 3, 3, 1, 2, 3, 1, 0, 1, 3, 2, 1
- Compute the total number of page faults in case of:
- i) FIFO
  - ii) LRU with matrix

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