

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

S-2018-1702

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

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** What is an operating system? Discuss various operating system structures with the help of suitable diagrams. (15)
- Q.2** What do you mean by process? Give the various process states and explain process state transition. (15)
- Q.3** What is the need of virtual memory? How virtual addresses are converted to physical addresses? Explain with suitable example. (15)
- Q.4** Explain the implementation and characteristics of semaphore with the help of example. (15)
- Q.5** What is swapping? Why it is essential in memory management? Explain memory management with bitmap and linked list. (15)
- Q.6** Discuss various protection mechanisms in the file system. (15)
- Q.7** Write short notes on the following: (15)
- a) Disk structure
 - b) Linux operating system
 - c) Multiprocessing operating systems

SECTION - II

- Q.8** What is deadlock? Give the conditions for occurrence of deadlock and explain deadlock detection methods in brief. (20)
- Q.9** Consider the following case: (20)

Processes	Arrival time	Execution time (min.)
P1	10:00	8
P2	10:05	2
P3	10:06	6
P4	10:09	1

Calculate average waiting time and turnaround time in case of :

- a) First come first served
 - b) Shortest job first
- Q.10** a) What is scheduler? Explain the types of it with suitable diagram. (10)
- b) Explain the following algorithms: (10)
- i) Second chance page replacement algorithm
 - ii) LRU with matrix