M.Tech. 1st Semester

Examination, December–2018

CYBER FORENSICS AND INFORMATION SECURITY

Paper– MTCF–103

Operating System and Security

Time allowed : 3 hours]   [Maximum marks : 100

*Note: Attempt five questions in total, selecting **one** question from each section and **Question No. 1** which is **Compulsory**. All questions carry equal marks.*

1. (a) Differentiate between Multi-programming and time sharing operating system.   5×4=20

    (b) What is swapping and what is its purpose?

    (c) Write a note on Registry data types.

    (d) Write a note on Code Signing.

Section–A

2. What do you mean by operating system? Explain its function. Write a note on Layered structure of operating system.   20

3. Describe and Explain BANKER's Algorithm for deadlock avoidance by taking one example.   20

Section–B

4. Differentiate between Contiguous and Non-contiguous memory Allocation Scheme. Explain one Non-contiguous memory allocation scheme in detail with the help of suitable diagrams and examples.   20

5. Suppose that a disk drive has 5000 cylinders numbered 0 to 4999. The drive is currently serving a request at cylinder 143, and the previous request was at cylinder 125. The queue of pending request, in FIFO order is:
86, 1470, 913, 1774, 948, 1509, 1022, 1750, 130

    Starting from the current head position, calculate the total distance (in cylinders) that the disk arm moves to satisfy all the pending requests for each of the following disk-scheduling algorithms.

    (a) FCFS   (d) LOOK

    (b) SSTF   (e) C–SCAN

    (c) SCAN   (f) C–LOOK   20

Section–C

6. Explain Windows Management Instrumentation (WMI) Architecture in detail by using suitable diagram.   20

7. Write a note on following: 20

    (a) Service Applications.

    (b) Thread Scheduling.

Section–D

8. Describe the following   20

    (a) Remote file system security.

    (b) Network file system (NFS)

9. Write a note on following: 20

    (a) Model-Based Intrusion Detection

    (b) Digital Right Management.