

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. $5 \times 4 = 20$
 (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 |

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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.