

## Faculty of Sciences

## B.Sc. (Computer Science) III-Year, CBCS-V Semester Examinations, 2018-19

## PAPER: OPERATING SYSTEMS

Time: 3 hours

Max Marks: 60

## Section-A

I. Answer any three of the following questions (3x5=15 Marks)

1. List out the services provided by operating system and explain why operating system acts as a Resource Manager?
2. Describe POSIX and Pop Up threads?
3. What is Virtual Memory and memory abstraction?
4. Discuss about File system with example?
5. Discuss principles of I/O hardware I/O software?
6. What are Inside Attacks and Malware?

## Section-B

II. Answer the following questions (3x15=45 Marks)

7. (a) What is a process and thread? Explain Process States, thread benefits and Thread models in detail?

(OR)

- (b) What is CPU scheduling? Explain scheduling mechanism in Interactive and Real time systems with example?

8. (a) Define Paging. Explain any two page replacement algorithms with example and discuss its advantages and disadvantages?

(OR)

- (b) Explain File system Implementation and its Optimization?

9. (a) Define Deadlock. Write the algorithm steps for Bankers Algorithm(Safety Sequence) Consider a system of 12 magnetic tape drives and three processes P0,P1,P2 . Is the system in safe state? If so write safety sequence by considering following data:

| Process | Max Tape drives required | Allocated Tape Drives |
|---------|--------------------------|-----------------------|
| P0      | 10                       | 5                     |
| P1      | 4                        | 2                     |
| P2      | 9                        | 2                     |

(OR)

- (b) Explain how operating system provides the security to the system? Discuss formal models of secure system?