

**FACULTY OF ENGINEERING****B.E. VI – Semester (CBCS) (Main) Examination, May/June 2019****Subject: Operating Systems (Elective – I)****Time: 3 hours****Max. Marks:70****Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.****Part – A (2 x 10 = 20 Marks)**

- 1) List the various OS components?
- 2) Distinguish between semaphore and monitors?
- 3) Distinguish between logical address and physical address?
- 4) List and define non-contiguous memory allocation schemes?
- 5) Describe the conditions under which a deadlock situation may arise?
- 6) List the implementation techniques of access matrix?
- 7) Discuss the advantages of contiguous memory allocation of disk space?
- 8) List any four secondary storage memory devices?
- 9) Write about Windows NT?
- 10) Explain Process Management in Linux?

**PART – B (5 x 10 = 50 Marks)**

- 11)a) List out the various process states and briefly explain the same with a state diagram? (05)  
b) Describe the typical elements of process control block? (05)

- 12) Consider the following set of processes with the length of the CPU burst time given in milliseconds

| Process | BurstTime |
|---------|-----------|
| P1      | 10        |
| P2      | 1         |
| P3      | 2         |
| P4      | 1         |
| P5      | 5         |

The processes are assumed to have arrived in the order p1, p2, p3, p4, p5 all at time 0. Draw Gantt charts illustrating the execution of these processes using FCFS, SJF and calculate TAT. (10)

- 13) a) Define page fault? When does a page fault occur? Describe the action taken by OS when page fault occurs? (5)  
b) Explain the following file concepts: (5)  
i) File attributes  
ii) File operations.
- 14) a) State and explain the methods involved in recovery from deadlocks? (05)  
b) Explain how resource graph can be used for detecting deadlocks? (05)

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- 15) a) Explain how disk caching can improve disk performance? (05)  
b) Discuss in detail the performance issues of secondary storage management? (05)
- 16) a) Explain Inter Process Communication in Windows NT (05)  
b) Explain Kernel Modules? (05)
- 17) Write short notes on of the following: (10)  
a) Thrashing  
b) File System Mounting

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