

III B. Tech I Semester Supplementary Examinations, October/November- 2018
OPERATING SYSTEMS

(Common to Computer Science Engineering and Information Technology)

Time: 3 hours

Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
 2. Answering the question in **Part-A** is compulsory
 3. Answer any **THREE** Questions from **Part-B**

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**PART -A**

- |   |    |                                                                                      |      |
|---|----|--------------------------------------------------------------------------------------|------|
| 1 | a) | Mention the objectives and functions of an operating system.                         | [3M] |
|   | b) | Define preemption and nonpreemption.                                                 | [4M] |
|   | c) | What is Semaphore? Mention its properties.                                           | [4M] |
|   | d) | List the steps needed for page replacement.                                          | [4M] |
|   | e) | What is deadlock? What are the schemes used in operating system to handle deadlocks? | [3M] |
|   | f) | What are the various file accessing methods?                                         | [4M] |

**PART -B**

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|---|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| 2 | a) | Explain the operating system structure and its functions.                                                                                                                                                                          | [8M] |
|   | b) | Briefly Explain the different types of systems: parallel systems, distributed systems and real-time systems?                                                                                                                       | [8M] |
| 3 | a) | Explain the steps involved in process creation and process termination.                                                                                                                                                            | [8M] |
|   | b) | Demonstrate FIFO and Round Robin CPU scheduling algorithms with suitable example.                                                                                                                                                  | [8M] |
| 4 | a) | What is the critical section? What are the minimum requirements that should be satisfied by a solution to critical section problem?                                                                                                | [8M] |
|   | b) | Give a solution for readers-writers problem using conditional critical regions?                                                                                                                                                    | [8M] |
| 5 | a) | Explain the concept of demand paging in detail with neat diagrams.                                                                                                                                                                 | [8M] |
|   | b) | Given memory partition of 100 KB, 500 KB, 200 KB and 600 KB ( in order). Show with neat sketch how would each of the first-fit, best-fit and worst fit algorithms place processes of 412 KB, 317 KB, 112 KB and 326 KB (in order). | [8M] |
| 6 | a) | Explain the techniques used to prevent the deadlocks.                                                                                                                                                                              | [8M] |
|   | b) | Explain Banker's deadlock-avoidance algorithm with an illustration.                                                                                                                                                                | [8M] |
| 7 | a) | Discuss the different file allocation methods with suitable example.                                                                                                                                                               | [8M] |
|   | b) | Compare and contrast free space management and swap space management.                                                                                                                                                              | [8M] |

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