

Code No: RT31055

R13**SET - 1****III B. Tech I Semester Supplementary Examinations, May- 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) Differentiate between kernel mode and user mode. [3M]
- b) Define multi-threading? Explain its benefits. [4M]
- c) What is a critical section? Give examples. [4M]
- d) What do you mean by page fault? [4M]
- e) What are the necessary conditions for deadlock? [4M]
- f) Compare bit map based allocation of blocks on the disk with a free block list. [3M]

PART -B

- 2 a) Explain the purpose of system calls and discuss the system calls related to process control and communication in brief. [8M]
- b) Explain evolution of operating systems. [8M]
- 3 a) Describe the differences among long-term scheduling, short-term, and medium-term scheduling. [8M]
- b) What are the components of process control block? Explain. [8M]
- 4 a) Write Peterson Algorithm for 2-process synchronization to critical section problem and discuss briefly. [8M]
- b) What are the semaphores? How do they implement mutual exclusion? [8M]
- 5 Consider the following page reference string: 1, 2, 3, 4, 2, 1, 5, 6, 1, 2, 3, 7, 6, 3, 2, 1, 2, 3, 6. How many page faults would occur for the LRU, FIFO, LFU and optimal page replacement algorithms assuming two and five frames? [16M]
- 6 a) How can a system recover from a deadlock? Explain [8M]
- b) Explain the Resource-Allocation Graph Algorithm for deadlock prevention. [8M]
- 7 a) Explain the different file access methods in detail. [8M]
- b) Describe any two disk scheduling algorithms with suitable illustrations. [8M]
