Reg. No. : | | | | | | | | | | |

Question Paper Code: 50835

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2017

Third Semester

Information Technology

15UIT305 - OPERATING SYSTEMS

(Regulation 2015)

(Common to Computer Science and Engineering branch)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

1. What is the ready state of a process

   (a) when process is scheduled to run after some execution
   (b) when process is unable to run until some task has been completed
   (c) when process is using the CPU
   (d) none of these

2. A monitor is a type of

   (a) semaphore
   (b) low level synchronization construct
   (c) high level synchronization construct
   (d) none of these

3. A deadlock avoidance algorithm dynamically examines the _____, to ensure that a circular wait condition can never exist.

   (a) resource allocation state (b) system storage state
   (c) operating system (d) resources

4. _____ is the concept in which a process is copied into main memory from the secondary memory according to the requirement

(a) Paging (b) Demand paging
(c) Segmentation (d) Swapping

5. The _____ keeps state information about the use of I/O components

(a) CPU (b) OS (c) kernel (d) shell

PART - B (5 x 3 = 15 Marks)

6. What are the five major categories of system calls?

7. Differentiate between pre-emptive and non- pre-emptive scheduling.

8. Give the necessary conditions for deadlock to occur.

9. What is meant by thrashing? How do you limit the effects of thrashing?

10. What are the ways to implement the free space list?

PART - C (5 x 16 = 80 Marks)

11. (a) Explain the purpose of system calls and discuss the calls related to device management and communications in brief. (16)

Or

(b) Explain how hardware protection can be achieved and discuss in detail the dual mode of operations. (16)

12. (a) Explain in detail about any two CPU scheduling algorithms with suitable examples? (16)

Or

(b) What is synchronization? Explain how semaphores can be used to deal with n-process critical section problem. (16)

13. (a) Explain the concept of paging in detail with necessary diagrams. (16)

Or

(b) Describe the hierarchical paging technique for structuring page tables. (16)

14. (a) Explain FIFO, LRU and Second-chance page replacement algorithms with an example reference string. (16)

Or

(b) Explain the concept of demand paging. How can demand paging be implemented with virtual memory (16)

15. (a) Explain the services provided by a kernel I/O subsystem. (16)

Or

(b) Describe the different forms of disk scheduling. (16)