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Question Paper Code: 53805

B.E./B.Tech. DEGREE EXAMINATION, MAY 2018

Third Semester

Information Technology

15UIT305 OPERATING SYSTEMS

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer All Questions

PART A - (5x 1 = 5 Marks)

1. The user view of operating system is designed mostly for CO1- R
(a) resource utilization (b) ease of use
(c) controlled program (d) command mode
2. The processes that are residing in main memory and are ready and waiting to execute are kept on a list called CO2- U
(a) job queue (b) ready queue (c) execution queue (d) process queue
3. Consider a set of n tasks with known runtimes r_1, r_2, \dots, r_n to be run on a uniprocessor machine. Which of the following processor scheduling algorithms will result in the maximum throughput? CO3- R
(a) Round-Robin (b) Shortest job First (c) Priority (d) First-Come-First-Served
4. _____ page replacement algorithm suffers from Belady's anomaly. CO4- R
(a) FIFO (b) Optimal (c) LIFO (d) LRU

5. The _____ keeps state information about the use of I/O components CO5- R
- (a) CPU (b) OS (c) kernel (d) shell

PART – B (5 x 3= 15Marks)

6. When a system is said to have fault tolerance capability? CO1- U
7. What is race condition? CO2- U
8. Give the necessary conditions for deadlock to occur. CO3- U
9. Why Disk Scheduling necessary? CO4- U
10. What is Demand paging? CO5- U

PART – C (5 x 16= 80Marks)

11. (a) Consider in computers caches are very useful. What problems do they solve? What problems do they cause? If a cache can be made as large as the device for which it is caching, why not make it that large and eliminate the device. CO1-U (16)
- Or
- (b) Write about the various system calls. CO1 -U (16)
12. (a) Explain about interprocess communication CO2 -U (16)
- Or
- (b) What is synchronization? Explain how semaphores can be used to deal with n-process critical section problem. CO2 -U (16)
13. (a) Illustrate Banker's algorithm for deadlock avoidance with example. CO3- App (16)
- Or
- (b) With suitable diagram how segmentation and paging can be incorporated into a single system. CO3- U (10)
14. (a) Explain the schemes for defining the logical structure of a directory. CO4-U (16)

Or

- (b) Explain in detail about various page replacement strategies with example. CO4 -U (16)
15. (a) Discuss the following allocation methods for disk space. CO5- App (16)
- i. Contiguous allocation
 - ii. Linked allocation
 - iii. Indexed allocation
 - iv. Linked list

Or

- (b) Explain the various disk scheduling algorithm with neat diagram. CO5- App (16)

