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Question Paper Code : X 10317

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020 AND APRIL/MAY 2021
Fourth/Fifth Semester
Computer Science and Engineering
CS 8493 – OPERATING SYSTEMS
(Common to Electronics and Communication Engineering/Information Technology)
(Regulations 2017)

Time : Three Hours | Maximum : 100 Marks

Answer ALL questions

PART – A **(10×2=20 Marks)**

1. What is Interrupt ? Give example.
2. Differentiate system calls and system programs.
3. Define Semaphore.
4. What is the difference between thread and process ?
5. Define swapping.
6. What is thrashing ?
7. Name any three file attributes.
8. What is file mounting ?
9. What is the use of fork( ) and exec( ) ?
10. Name the four main object types of Virtual File System.

PART – B **(5×13=65 Marks)**

11. a) i) With a neat diagram, explain the memory hierarchy of a computer system. **(7)**

ii) Discuss about various services provided by operating system. **(6)**

(OR)

b) i) Write a brief note on Direct Memory Access. **(7)**

ii) Discuss about the structure of operating system and its operation. **(6)**

12. a) i) Compare and contrast preemptive and non-preemptive scheduling. **(7)**

ii) Explain the methods used for deadlock detection. **(6)**

(OR)

b) i) Briefly discuss about critical section problem. **(7)**

ii) Discuss about various necessary conditions for deadlock. **(6)**

13. a) i) With a neat diagram explain the concept of paging in memory management. **(7)**

ii) Write a brief note on contiguous memory allocation. **(6)**

(OR)

b) i) With an example, explain LRU page replacement algorithm. **(7)**

ii) Briefly explain the concept of Demand paging. **(6)**

14. a) i) Explain about various types of file access methods. **(7)**

ii) With a diagram discuss about the tree structured directory structure. **(6)**

(OR)

b) i) Write a detailed note on indexed memory allocation. **(7)**

ii) Explain the components of kernel I/O structure with a diagram. **(6)**

15. a) i) With a neat diagram explain the components of a Linux system. **(7)**

ii) Describe about inter process communication in Linux system. **(6)**

(OR)

b) i) Discuss about the components of Android mobile OS architecture. **(7)**

ii) Explain about how scheduling is handled in Linux system. **(6)**

PART – C **(1×15=15 Marks)**

16. a) Which of the following scheduling algorithms could result in starvation ?

a) First-come, first-served

b) Shortest job first

c) Round robin

d) Priority

Justify your answer with a suitable example. **(15)**

(OR)

b) Suppose that a disk drive has 1000 cylinders, numbered from 0 to 999. The drive is currently serving a request at cylinder 160. The queue of pending requests, in FIFO order is 86, 913, 240, 645, 130, 948, 750, 325.

Starting from the current head position, what is the total distance (in cylinders) that the disk arm moves to satisfy all the pending requests for each of the following disk scheduling algorithms. **(15)**

a) FCFS

b) SSTF

c) SCAN.

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