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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

FOURTH SEMESTER B.TECH DEGREE EXAMINATION, JULY 2017

Course Code: **CS204**

Course Name: **OPERATING SYSTEMS (CS)**

Max. Marks: 100 Duration: .3 Hours

PART A

Answer all Questions. Each question carries 3 marks.

1. What is meant by clustered systems? Explain.
2. What is the purpose of command interpreter?
3. Discuss the different states of a process.
4. Explain Monolithic Structure of an Operating System.

PART B

Answer any TWO FULL Questions. Each question carries 9 marks.

5. a) Discuss any two kernal data structures. (4.5)
   b) What is meant by Process Control Block? Discuss its significance. (4.5)
6. a) Differentiate between Medium Term Scheduler and Long Term Scheduler. (4.5)
   b) Explain the System Boot Process. (4.5)
7. a) Differentiate between Monolithic and Micro kernel Design of OS. (4.5)
   b) Briefly discuss Pipes for message passing. (4.5)

PART C

Answer All Questions. Each question carries 3 marks.

8. What is meant by Critical Section? Explain.
9. Discuss the wait() and signal(). How the busy waiting is eliminated in Semaphores?
10. Explain resource allocation graph with an example.
11. What is Dining Philosopher's Problem? Explain.

PART D

Answer any TWO FULL Questions. All Questions carry equal marks.

12. a) What is Readers Writers Problem? (Multiple readers will be allowed) (4.5)
    b) Consider the following set of processes that arrive at time 0 with the length of the CPU

burst time given in milliseconds.

Process	Burst Time
P1	24
P2	3
P3	3

Schedule the process using Round Robin Scheduling Algorithm. (4.5)

13. a) Define the difference between Preemtive and non-preemptive scheduling. (4.5)

b) Show that if the wait and signal operations are not executed atomically then mutual exclusion may be violated. (4.5)

14. a) Consider the following set of processes that arrive at time 0 with the length of the CPU burst time given in milliseconds.

Process	Burst Time
P1	6
P2	8
P3	7
P4	3

Give the Gantt chart of the process using SJF Algorithm. Also find its average waiting time. (4.5)

(b) Explain how mutual exlusion is achieved for the producer and consumer processes in Bounded Buffer Problem? (Use Semaphore) (4.5)

PART E

Answer any FOUR Questions. Each question carries 10 marks.

15. Discuss the following terms:

(i) Roll out,roll in (ii) External fragmentation (iii) 50-percent rule (10)

16. Given memory partitions of 100 KB, 500 KB, 200 KB, 300 KB, and 600 KB. How would each of the First fit Best-Fit and Worst-Fit algorithms place processes of 212 KB, 417 KB, 112 KB, and 426 KB? (10)

17. Differentiate between Hashed Page Table and Inverted Page Table. (10)

18. Explain various file operations (10)

19. Discuss Protection. What are the main differences between capability list and access list? (10)

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