Reg No.:_______________ Name:__________________________

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Sixth Semester B.Tech Degree Regular and Supplementary Examination July 2021

Course Code: EC366

Course Name: REAL TIME OPERATING SYSTEMS

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions, each carries 15 marks. Marks

1 a) Describe the microkernel and exokernel architecture of operating systems. (8)

b) Compare FCFS and Round Robin scheduling algorithms. (3)

c) Explain the multilevel feedback queue scheduling algorithm. (4)

2 a) Give a detailed description of the evolution of operating system. (8)

b) Schedule the following processes with FCFS and SJF algorithm. Compare their performances in terms of average waiting time and turnaround time. Assume all processes arrived at the same time. (7)

Process	Burst Time (mS)
P_1	5
P_2	7
P_3	2
P_4	4
P_5	6

3 a) Discuss the functions of operating system. (5)

b) Explain the different multiprocessor scheduling algorithms. (10)

PART B

Answer any two full questions, each carries 15 marks.

4 a) Explain the readers – writers problem in process synchronization. (7)

b) Discuss the different methods for preventing deadlock. (8)

5 a) Explain the different types of semaphores used for process synchronization (9)

b) Describe how relocation is implemented with hardware support (6)

6 a) Define deadlock. How the system detects deadlock. (10)

b) For the given page reference string calculate the fault rate if First-in First-out algorithm is used. 0,1,4,3,2,1,5,7,3,5,7,1,0,1 (5)

PART C

Answer all questions, each carries 20 marks.

7 a) Explain in detail the different disk scheduling algorithms. (20)

8 a) Discuss the different disk cache replacement policies. (6)

b) Explain the inter process communication methods supported by μC/OS (5)

c) Explain the segmentation method of memory management. (9)

9 a) With a block diagram explain a real life example of a Real Time Operation System. (12)

b) What you mean by a critical section problem? How the μC/OS handles the problem. (8)

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