

Q.P. Code : 6444

(3 Hours)

[ Total Marks :80

- N.B. :**
- (1) Question No.1 is compulsory
  - (2) Answer any three questions out of the remaining five questions.
  - (3) Assumptions made should be clearly stated.
  - (4) Figures to the right indicate full marks.
  - (5) Assume suitable data whenever required but justify the same.

1. (a) Explain Monolithic Kernel Vs Microkernel. 5
- (b) How is a real time OS different from normal OS? What are the characteristics of a RTOS? 5
- (c) What is PCB ? Discuss its major fields. 5
- (d) Explain different services provided by Operating System. 5
2. (a) Suppose that a disk drive has 200 cylinders, numbered 0 to 199. The initial head position is at 100<sup>th</sup> track . The queue of pending requests in FIFO is 55, 58, 39, 18, 90, 160, 150, 38, 184. Calculate average seek time for each of the following algorithm. 10  
1. FCFS 2. SSTF 3. SCAN 4. C-SCAN
- (b) Explain Linux Policy for Page Replacement. 10
3. (a) Explain memory Management with Linked List and Bitmap. 10
- (b) Consider the following set of processes having their CPU burst time (in millisecond) 10

Process	CPU Burst time	Arrival time
P1	10	0
P2	5	1
P3	2	2

for each of following algorithm

- (i) Draw Gantt chart
- (ii) Calculate average waiting time and Average turnaround time
  - (1) FCFS
  - (2) SJF
  - (3) Priority scheduling having priority range from 1 to 3 , respectively for process P1 =3, P2=2, P3=3 as given
  - (4) RR (slice= 2)

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4. (a) Explain process state transition diagram in UNIX. 10  
(b) Explain the working of EDF and RMA real time scheduling algorithms. 10
5. (a) What is segmentation? Explain it with example. 10  
(b) Explain different allocation methods for files. 10
6. (a) Explain table driven scheduler. What are its limitations? 10  
(b) What is Semaphore? How can we achieve the synchronization using semaphore for producer-consumer problem ? Explain. 10