Total No. of Questions : 8]

SEAT No. : [ ]

PC-1720

[Total No. of Pages : 2

[6353] - 37
T.E. (Computer Engineering)
System Programming & Operating System
(2019 Pattern) (Semester - I) (310243)

Time : 2½ Hours] ***[Max. Marks : 70***

Instructions to the candidates:

1) ***Attempt Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8.***
2) ***Figures to the right indicate full marks.***
3) ***Neat diagram must be drawn wherever necessary.***
4) ***Assume suitable data if necessary.***

Q1) a) Explain Static and Dynamic Linking with suitable diagram and example? **[9]**

b) Explain complete design of Absolute Loader? Also explain its advantages and disadvantages? **[9]**

OR

Q2) a) What is Direct Linking Loader? Explain design of Direct Linking Loader with suitable example? **[9]**

b) What is self-relocating programs? Explain with the help of loader schemes with neat diagram? **[9]**

Q3) a) Explain Short term, Medium term and Long term scheduler? Discuss their role in seven state process model. **[9]**

b) Explain seven state process model with diagram? **[8]**

OR

P.T.O.

Q4) a) Draw Gantt chart and calculate Avg. turnaround time, Avg. waiting time for the following processes using SJF (Non preemption) and round robin with time quantum 2 Units? **[9]**

Process	Burst Time	Arrival Time
P1	3	0
P2	5	1
P3	2	3
P4	5	9
P5	5	12

b) What is Process control block? Explain with diagram in detail? **[8]**

Q5) a) Write a short note on following with example? **[9]**

i) Semaphore ii) Monitor iii) Mutex

b) Explain Bankers algorithm for deadlock avoidance in detail with suitable example? **[9]**

OR

Q6) a) Explain producer Consumer problem & Dining Philosopher problem with solution? **[10]**

b) What is deadlock prevention? State and explain the conditions for deadlock occurrence? **[8]**

Q7) a) Consider page sequence 2,3,2, 1,5,2,4,5,3,2,5,2 and discuss working of following page replacement policies. Also count page faults.(use no. of Frames = 3) **[8]**

i) OPT (Optimal)

ii) LRU (Last Recently Used)

b) Why page size and frame size in paging should be same? What is translation look aside buffer? Describe its importance. **[9]**

OR

Q8) a) Write a short note on following with diagram **[8]**

i) Fixed Partitioning

ii) Dynamic Partitioning

b) Explain Placement Strategies: First Fit, Best Fit, Next Fit and Worst Fit. In detail with example? **[9]**