Total No. of Questions : 8] SEAT No. : T190C58709

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[6180]-138
T.E. (Information Technology)
OPERATING SYSTEMS
(2019 Pattern) (Semester-I) (314442)

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates :

1) *Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.*
2) *Neat diagrams must be drawn wherever necessary.*
3) *Figures to the right side indicate full marks.*
4) *Assume Suitable data if necessary.*

Q1) a) Describe in brief the different IPC mechanisms. [9]

b) What is deadlock? Explain the necessary and sufficient conditions for the occurrence of a deadlock. [9]

OR

Q2) a) Explain the following with example [9]

i) Mutual Exclusion ii) Synchronization

iii) Race condition.

b) What is Critical Section Problem? Explain readers-writers problem. [9]

Q3) a) What is page Fault? For the given reference string with 3-page frame available, determine the number of page faults for FIFO and LRU algorithms: [9]

3, 5, 3, 7, 2, 1, 5, 4, 6, 7, 4, 1, 2.

b) Explain Demand paging with the help of neat diagram. [8]

OR

Q4) a) Explain Buddy System with the help of neat diagram and example. [9]

b) What is segmentation? How address Translation is performed in segmentation system? [8]

P.T.O.

Q5) a) Describe three methods of record blocking with the help of neat diagrams. **[9]**

b) Explain the different functions of a file management system. **[9]**

OR

Q6) a) Assume a disk with 200 tracks and the disk request queue has random Requests in it as follows: 98,183,37,122,14,124,65,67. **[12]**

Find the no of tracks traversed and average seek length if **[6]**

i) FCFS

ii) SSTF

iii) SCAN is used and initially head is at track no 53.

b) What is spooling? Explain with suitable diagrams. **[6]**

Q7) a) Explain the data structures required for two PASS Assembler in detail. **[6]**

b) What is Macro? Explain macro call and macro expansion with suitable example. **[6]**

c) Discuss with example what is forward reference problem. **[5]**

OR

Q8) a) What is Loader? What are the basic functions of loaders? **[10]**

b) What is system software? Explain any four system software in brief? **[7]**

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