Total No. of Questions : 8]

SEAT No. :

PB3859

[Total No. of Pages : 2

[6262]-122
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 indicate full marks.***
4) ***Assume Suitable data if necessary.***

Q1) 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]**

OR

Q2) a) Enlist different IPC techniques. Differentiate between named pipe and unnamed pipe with suitable example. **[9]**

b) What is Critical Section problem? Give semaphore solution for producer-consumer 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: 3,5,7,2,1,5,4,6,7,4,1,2. **[9]**

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) Assume a disk with 200 tracks and the disk request queue has random requests in it as follows: 55,58,39,18,90,160,150,38,184. **[12]**

Find the no of tracks traversed and average seek length if

i) SSTF

ii) SCAN

iii) C-SCAN is used and initially head is at track no 100.

b) What are typical operations that may be performed on a directory? **[6]**

OR

Q6) a) What is I/O buffering? Why I/O buffering is needed? State and explain different approaches of I/O buffering. **[9]**

b) Explain with example any three disk scheduling criteria. **[9]**

Q7) a) List down the phases of a compiler. Explain with suitable example. **[9]**

b) Explain macro call and macro expansion with suitable example. **[8]**

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]**