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5th SEMESTER   B.Tech. (CSE)
SUPPLEMENTARY EXAMINATION   Feb-2019

CO 357 OPERATING SYSTEM

Time: 3:00 Hours   Max. Marks: 50

Note: Answer ANY 5 Questions. Question No. 1 is compulsory.
Assume missing data if any.

Q1. Answer all the following questions: [10]

(a) Mention the objectives and functions of an operating system.

(b) List the steps needed for page replacement.

(c) Explain the difference between internal and external fragmentation.

(d) What are the various file accessing methods?

(e) Discuss the Safe, unsafe, and deadlock state spaces.

Q2. Answer all the following questions:

(a) Explain the operating system structure and its functions   [5]

(b) Describe the features of a distributed operating system.   [5]

Q3. Answer all the following questions:

(a) Differences between preemptive scheduling and non preemptive Scheduling
                                                                      [5]

(b) Describe the differences among short-term, medium-term, and long term
Schedulers.   [5]

Q4. Answer all the following questions:

(a) Give a solution for readers-writers problem using conditional critical regions?
                                                                      [5]

(b) Write Peterson Algorithm for 2-process synchronization to critical section
problem and discuss briefly.   [5]

Q5. Answer all the following questions:

(a) Consider the reference string: 7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1
for a memory with three frames. Trace FIFO, optimal, and LRU page replacement
algorithms.   [5]

P.T.O.

(b) Discuss in detail about various page table structures.   [5]

Q6. Answer all the following questions:
(a) Define the term Virtual memory. Give memory partition of 100K ,500K, 200K, 300K and 600K (in order).How would each of the first fit, best fit and worst fit algorithm place process of 212 K, 417 K, 112K, and 426 K(in order)? Which algorithm makes the most efficient use of memory?   [5]

(b) A system has 6 processes sharing 'n' resources where 4 processes need at most 7 resources and other 2 processes need at most 5 resources. If the system is deadlock free, what is the min value of 'n'?   [5]

Q7. Answer all the following questions:
(a) Consider a disk system with 100 cylinders. The requests to access the cylinder occur in the following sequence:
5, 35, 11, 8, 20, 38, 3, 16, 7, and 21.

Assuming that the head is currently at cylinders 50, what is the time taken to satisfy all requests if it takes 1 millisecond to move from one cylinder to adjacent one and SSTF (shortest seek time first) and FCFS (first come first serve) policy is used.   [5]

(b) What do you understand by thrashing and its solution? Explain.   [5]

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