CBSE NET DECEMBER 2015 PAPER III

OPERATING SYSTEM QUESTION

Q. Consider a system with twelve magnetic tape drives and three processes p1,p2 and p3. Process p1 requires maximum ten tape drives, process p2 may need as many as four tape drives and p3 may need upto nine tape drives. Suppose that at time t1, process p1 is holding five tape drives, process p2 is holding two tape drives and process p3 is holding three tape drives. At time t1, system is in :

(1) Safe state

(2) Unsafe state

(3) Deadlocked state

(4) Starvation state

Ans: (3)

Exaplanation:

Processes	Maximum needs	Current needs
P1	10	05
P2	04	02
P3	09	03

Total number of magnetic tapes = 12

Already allocated magnetic tapes = 10

So, number of free magnetic tapes = 12 – 10 =2

From the above table,

Process P2 requires 2 more tapes for completion and since two tapes are free, they are allocated to process P2.Then, number of free tape drives = 4.

Since process P1 is allocated 5 tape drives, and has a maximum of 10, P1 may then request 5 more tape drives. Since only 4 tape drives are available, so, process P1 must wait.

Similarly, process P3 may request an additional 6 tape drives and have to wait.

Waiting of P1 and P3 will resilt in a deadlock. So the system is in deadlocked state.

Correct answer is (3).

See also: Starvation, Deadlock, Safe state, Unsafe state

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93. Multiple Processor Scheduling
94. What do you mean by Virtual Memory? Write down its advantages?
95. Compare Paging and Segmentation?
96. What is Process Scheduling, CPU Scheduling, Disk Scheduling? Explain Short, Medium and Long term Scheduler?
97. Explain concept of a process with its components ?
98. Explain the following in brief Contiguous and Linked list allocation for implementing file system?
99. Explain various Disk scheduling algorithms with Illustrations ?
100. Define process and thread. What is PCB ? Explain its various entries with their usefulness ?

101. Discuss advantages and disadvantages of the Buffer cache ?
102. Explain different types of OS with examples of each ?
103. What is an Operating System? Write down its desirable characteristics ?
104. Define a deadlock ? Write down the conditions responsible for deadlock? How can we recover from deadlock ?
105. What are the various services provided by Operating system ?
106. What do you mean by PCB? Where is it used? What are its contents? Explain.
107. What is Binary and Counting semaphores ?
108. What is File? What are the different File attribute and operations?
109. What are System call? Explain briefly about various types of system call provided by an Operating System?
110. Describe necessary conditions for deadlocks situation to arise.
111. What are points to be consider in file system design? Explain linked list allocation in detail?
112. Write a Semaphore solution for dining Philosopher’s problem?
113. Consider the following page reference string:1,2,3,4,5,3,4,1,2,7,8,7,8,9,7,8,9,5,4,5. How many page faults would occur for the following replacement algorithm, assuming four frames:a) FIFOb) LRU
114. Explain CPU schedulers in operating system?
115. Write the different state of a process with the help of Process state deagram?
116. What is Mutex in operating system?
117. Explain Network operating system?
118. What do you mean by paging in operating system ?