CBSE NET DECEMBER 20133 PAPER II

OPERATING SYSTEM

Q. Consider a pre-emptive priority based scheduling algorithm based on dynamically changing priority. Larger priority number implies higher priority. When the process is waiting for CPU in the ready queue (but not yet started execution), its priority changes at a rate a = 2. When it starts running, its priority changes at a rate b = 1. All the processes are assigned priority value 0 when they enter ready queue. Assume that the following processes want to execute:

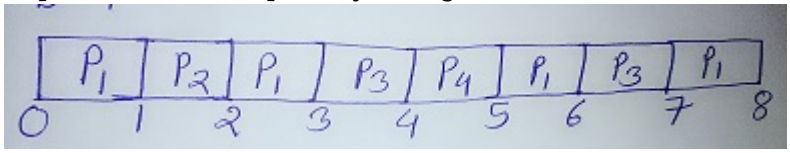
Process ID	Arrival Time	Service Time
P1	0	4
P2	1	1
P3	2	2
P4	3	1

The time quantum q = 1. When two processes want to join ready queue simultaneously, the process which has not executed recently is given priority. The finish time of processes P1, P2, P3 and P4 will respectively be

(A) 4, 5, 7 and 8
(B) 8, 2, 7 and 5
(C) 2, 5, 7 and 8
(D) 8, 2, 5 and 7

Ans: (B)

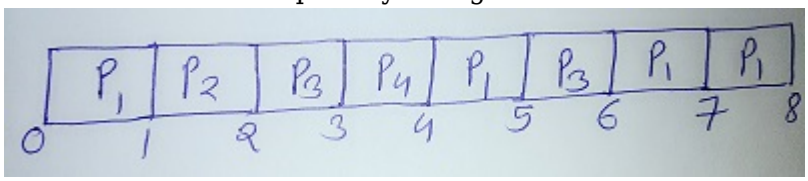
Explanation: When priority changes at a rate a=2, b=1, Gantt Chart :



So from above Gantt Chart,

Finish time of *P1=8,P2=2,P3=7,P4=5*.

If we do not consider priority changes than Gantt Chart become:



So from above Gantt Chart,
Finish time of P1=8,P2=2,P3=6,P4=4.

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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 ?