Page 01

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Subject Operating Sy

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DATE :-

Q1. Explain the necessary condition that may lead to the deadlock situation.
2 What are the various types methods for handling deadlocks?

Ans. Deadlocks :- Is a situation where a set of processes are blocked because each process is holding a resource and waiting for an other resource are required by some other process.
Consider an example when two are coming towards each other on same track and there is only one track move of the train can move once they are in front of each other Similarly situation occurs in operating syste
Necessary Conditions :- There are four conditio that are necessary to achive deadlock
① Mutual Exclusion :- At least one resource must be held in a non-Sharable mode. If any other process requests Their resources than that process must wait for the resource to be released.

DATE :-

(ii) Hold and wait:- A process must be simultaneously holding at least once resource and waiting for at least one resources that is currently being held by some other process.

(iii) No-Preemption:- Once a process is holding a resource i,e once its request has been process voluntarily release it.

iv) Circular wait:- A set of process (P0, P must exist for P(i+1)% (N+1) (Note PN) that this condition implied the hold and wait condition.

(2) ———.

Ans: Dead lock with one process is not possible Here is it explanation.

A deadlock situation is a rise if the following condition hold simultaneously in a system

(1) Mutual Exclusion (2) Hold & wait (3) No-Preemption (4) circular wait.

It is not possible to have a circular wait with only one process. this failure a necessary condition for circular wait. There is no process found to form a circle with the first one. So it is not possible to have deadlock involing only process

DATE :-

Page (4).

Q3 —

Ans. Suppose the system is deadlock this that each process is holding one resource and his waiting for one more. Since these are three processes and four resources one process must be able to obtain two resources. This process returns no more resource and those for it will returns its resources when done

Q5 —

Detection of Starvation because future Knowlege since no amount of record Keeping statistics on processes can determine if it is making Process or not However, starvation can be prevented by aging a process. This means maintaining a rollback count for each Process and including this as part of the cost factor in the section. Process for a victim for Preeption / roll back.

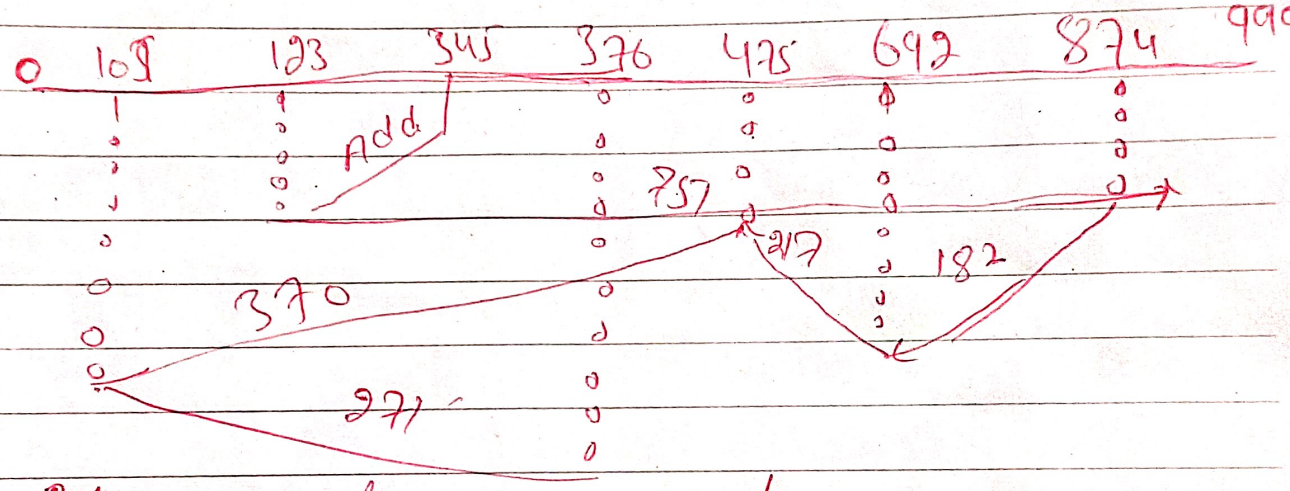
24) Resource allocation Graph:-
It is the pictorial representation of the state of the system as its name suggests, the resources allocation graph is the complete information about all the processes which are holding some resources ~~which are~~ waiting for some resources it also contains the information about all the instance of all resources whether they are available or being used by the processes.
In resources allocation graph the process is represented by circular which the resources is represented by rectangle.
Vertices:-
⟹ Vertices are mainly of two types resource and process each of them will represented by a different shapes circle represent process while rectangle represented resource.
Edges:- Edges are also two types one represent ⟹ like assignment and other represent the wait of process for a resource. The above image each shown of them. A process is shown as waiting for resource if the tail of an arrow is allocated to the process.

DATE :-

Q6.

(i) Fcfs :-

Fcfs is the simplest of all the disk scheduling algorithms. In Fcfs the request are addressed in the order they arrive in the disk queue



Total R/w head movement :-

$222 + 751 + 182 + 217 + 370 + 271 = 2013$

(2) SSTF :- In this SSTF request having shortest seek time are executed first. So they seek time of every request is calculated in advance in queue and then they are scheduled. According to other calculated seek time.