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## Assignment-2

Q1:- Define following terms:-

Ans:- Seek time:- It is the time taken for a hard disk controller to locate specific piece of stored data.

Pre-emptive Scheduling:- Preemptive scheduling is used when a process switches from running state to ready state or from waiting state to ready state.

Dispatcher:- Dispatcher is a module that give control of CPU to the process.

Virus:- Virus is malicious software program loaded into a user's computer without the user's knowledge and program malicious action.

Critical Section:- It is a segment or code that accesses a shared resources.



Deadlock :- It is situation where a set of process are blocked because each process is holding a resource and waiting another resource.

Q2:- Difference between process and thread.

Sol:-

Process

Thread

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• It is called heavyweight process.</li> </ul>                   | <ul style="list-style-type: none"> <li>• It is called light-weight process.</li> </ul>               |
| <ul style="list-style-type: none"> <li>• It takes more time to terminate.</li> </ul>                    | <ul style="list-style-type: none"> <li>• It takes less time to terminate.</li> </ul>                 |
| <ul style="list-style-type: none"> <li>• It uses interface in OS.</li> </ul>                            | <ul style="list-style-type: none"> <li>• It doesn't use to call a OS.</li> </ul>                     |
| <ul style="list-style-type: none"> <li>• It is isolated.</li> </ul>                                     | <ul style="list-style-type: none"> <li>• It shares memory.</li> </ul>                                |
| <ul style="list-style-type: none"> <li>• It consumes more resources.</li> </ul>                         | <ul style="list-style-type: none"> <li>• It consumes less resources.</li> </ul>                      |
| <ul style="list-style-type: none"> <li>• Individual processes are independent of each other.</li> </ul> | <ul style="list-style-type: none"> <li>• These are part of a process and hence dependent.</li> </ul> |



Q3:- Difference between internal fragmentation and external fragmentation.

Internal Fragmentation	External Fragmentation.
<ul style="list-style-type: none"><li>• Frames square measure designated for processing in internal fragmentation of fixed-size storage.</li><li>• when the system or procedure is greater than the storage, internal fragmentation occur.</li><li>• The internal fragmentation approach is the frame with the perfect match.</li><li>• It happen whenever the storage is split into frag-</li></ul>	<ul style="list-style-type: none"><li>• Variable-size memory frame square measure designated to the process during external fragmentation.</li><li>• Whenever the system or procedure is withdrawn, external fragmentation occur.</li><li>• Compression, paging, and differentiation are alternatives to external fragmentation.</li><li>• It happens whenever the storage is split into</li></ul>



mentation of a fixed length.

• Segments of variable size depending on the process length.

- The distinction between the assigned memory and the storage or memory needed is considered as internal fragmentation.
- The empty spaces created among non-contiguous pieces of storage are too tiny for a new system to operate, considered as external fragmentation.
- Best-fit block can be used to overcome the problem.
- Segmentation, paging can be used to overcome this problem.

Q4:- Give five memory partitions of 100KB, 500KB, 200KB, 300KB and 600KB (in order), how would the first-fit, best-fit, and worse fit algorithms place the following process (in order)?

212KB, 417KB, 112KB, 426KB.



Ans First-fit

212 KB is put in 500 KB slot  
417 KB is put in 600 KB slot.  
112 KB is put in 288 KB slot.  
426 KB must wait.

Best-fit.

212 KB is put in 300 KB slot.  
417 KB is put in 500 KB slot.  
112 KB is put in 200 KB slot.  
426 KB is put in 600 KB slot.

Worse-fit

212 KB is put in 600 KB slot.  
417 KB is put in 500 KB slot.  
112 KB is put in 388 KB slot.  
426 KB must wait

Q5:- Explain various strategies to handle the dead lock?



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Ans:- Deadlock ignorance:- It is most widely used approach among all ~~meas~~ mechanism. This is being used by many operating systems mainly end users.

Deadlock prevention:- It happens when mutual exclusion hold and wait, no preemption and circulate wait holds simultaneously. If it is possible to violates one of the four condition at any time then the deadlock can never occur in system.

Deadlock avoidance:- The operating system checks whether the system is in ~~scope~~ safe state or in unsafe state at every step which the operating system performance. The process continuous until the system is in safe state. Once the system moves to unsafe state, the OS has to break any step.

Deadlock detection and Recovery:- This approach let the process fall in deadlock and the periodically check whether deadlock occur in the system or not. If it occur then it applies some of the accuracy methods to the system to get rid of deadlock.