Assignment

Name of student

Name of Institution

**Answer 1**

Mutual exclusion is necessary for a deadlock because without this condition, there will be no deadlock. A deadlock is related to processes and resources at the same time. If there is a resource which cannot be used at the same time by more than one processes, it will create a deadlock between the two processes. A process is a set of continuous instructions which have to be undertaken in a set sequence. A resource includes all things which are necessary to complete a process successfully. There are resources which are absolutely critical for the process to be completed. A slight interruption in these resources will affect the effectiveness of the whole process. Some resources can be exchanged between different processes from time to time. A process which requires full time use of a resource will be considered mutually exclusive. Mutual exclusion will result in a deadlock between two processes when a single resource has to be used by both (Dimitoglou, 1998).

**Answer 2**

Seek time is the time taken by read/write head to reach its exact destination (Techopedia, 2020). Position of the magnetic disk is exactly placed under the read/write head within the search time. Some people confuse the two because they do not know the parts of a magnetic disc. When one writes or reads anything on a disc drive, the head of this drive has to take the right position. The actual positioning of read/write section of the disc is called seeking. There can be different seek times on a single disc because of the differences between starting points and destination points. This difference means that average seek time is calculated to represent the seek time. Search time is related to the rotation of the disc whereas seek time is related to the read/write head. A read/write head is a specific part of the hard disc that reads data from and writes it to the disc.

**Answer 3**

Raid level 2 system provides a very high level of data transfer rates. In this system, there is a central controller that makes sure that discs spin at the same angle so that they reach the same index at the same time (Techopedia, 2020). This system uses bit level striping and different hard drive is used to keep each bit. It will be beneficial to use this system in a university payroll system because they will provide recovery options from failed components. When the booting starts, any failure related to firmware is accounted for. These systems will be easier to use and simpler as compared to other raid levels. It will allow easy detection of errors so that corrections can be made to the system. An alternative raid system will be raid 5 as it contains positive aspects of raid 0 and raid 1.

**Answer 4**

Spooling is the process associated with the output devices and more specifically printers. This happens because the output device is not able to handle more than one operations at a time. Once a job is done, the next job is started by the output device. Buffering process is mostly associated with the internet and more specifically with the video content run on the systems. In this case, the whole data has already been received by the hard disc of the system and it is then played on the screens. CPU gets ready for the next operation and in the meanwhile it is read by the input device. Buffer happens because the speeds at producer and consumer of data streams are different. Data transfer sizes are also different between various devices. Buffer is an area of main memory whereas spooling is associated with input/output devices (Burnside, 2020).

# **References**

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