Name – MOITRISH MAITY

Roll – 48

Dept –CSE

4th Sem

ASSIGNMENT 1

1) The comparisons between UMA and NUMA are as follows :

Sr. No.	UMA	NUMA
1	UMA has single memory controller.	NUMA has multiple memory controllers.
2	UMA memory access is slow.	NUMA memory accsss is faster than UMA memory.
3	UMA has limited bandwidth.	NUMA has more bandwidth than UMA.
4	UMA is used in general purpose and time sharing applications.	NUMA is used in real time and time critical applications.
5	UMA has equal memory access time.	NUMA has varying memory access time.

Examples:

UMA – Sun Starfire servers, Compaq alpha server.

NUMA – BBN TC-2000 Butterfly microprocessor.

A memory dump is the process of taking all information content in RAM and writing it to a storage drive. Developers commonly use memory dumps to gather diagnostic information at the time of a crash to help them troubleshoot issues and learn more about the event. Information yielded by the memory dump can help developers fix errors in operating systems and other programs of all kinds.

2) The major differences between segmentation and paging are :

Segmentation	Paging
1) It is of variable size.	This is of a fixed size.
2) The size is defined by the user.	The size is determined by the hardwire.
3) This process is slower for memory access.	This is faster than paging.
4) There is availability of many independent address spaces.	The user provides a single integer as the address.
5) Segmentation table stores the data.	Page table stores the data.

Paging is implemented by breaking up an address into a page and offset number. It is most efficient to break the address into X page bits and Y offset bits, rather than perform arithmetic on the address to calculate the page number and offset. As each bit position represents a power of 2, splitting an address between bits results in a page size that is a power of 2.

3) **Loosely Coupled Multiprocessor System:**
It is a type of multiprocessing system in which there is distributed memory instead of shared memory. In loosely coupled multiprocessor system, the data rate is low rather than tightly coupled multiprocessor system. In

loosely coupled multiprocessor system, modules are connected through MTS (Message transfer system) network.

Tightly Coupled Multiprocessor System:
It is a type of multiprocessing system in which there is shared memory. In tightly coupled multiprocessor system, data rate is high rather than loosely coupled multiprocessor system. In tightly coupled multiprocessor system, modules are connected through PMIN, IOPIN and ISIN networks.