Cloud Computing Question Bank

1. List and describe the main characteristics of cloud computing systems
2. Define scalable computing and with neat diagram explain the concept of Platform Evolution
3. Differentiate between centralized, distributed, and parallel computing
4. Difference between High performance computing and High Throughput computing
5. What are the differences between multicore CPUs and GPUs in terms of architecture and usage
6. Explain GPU Computing to Exascale and with diagram explain NVIDIA Fermi GPU CUDA cores.
7. Explain the architectures of three VM configurations along with the VM Primitive operations with the neat diagram.
8. Explain the concept of Grid Families, Peer-to-Peer Network Families and Overlay Networks with diagram.
9. Explain the concept of Layered achitecture for web services and the grids with a neat diagram
10. Explain the concept of SOA evolution
11. How do performance, security, and energy efficiency impact the design and operation of modern computing systems
12. Write a note on Network Threats and Data Integrity
13. Define Virtualization & Explain the levels of Virtualization Implementation
14. Illustrates operating system virtualization from the point of view of a machine stack
15. Illustrate The Xen architecture's special domain 0 for control and I/O, and several guest domains for user applications.
16. Differentiate between para virtualization and full virtualization
17. Illustrate the concept of Two-level memory mapping procedure in memory virtualization also explain the same using EPT by Intel
18. Illustrate the process of Live migration of a VM from one host to another and effect on the data transmission rate with a neat diagram.

19. Consider a multicore processor with four heterogeneous cores labeled A, B, C, and D. Assume cores A and D have the same speed. Core B runs twice as fast as core A, and core C runs three times faster than core A. Assume that all four cores start executing the following application at the same time and no cache misses are encountered in all core operations. Suppose an application needs to compute the square of each element of an array of 256 elements. Assume 1 unit time for core A or D to compute the square of an element. Thus, core B takes 1 2 unit time and core C takes 1 3 unit time to compute the square of an element. Given the following division of labor in four cores:

Core A	32 elements
Core B	128 elements
Core C	64 elements
Core D	32 elements

a. Compute the total execution time (in time units) for using the four-core processor to compute the squares of 256 elements in parallel. The four cores have different speeds. Some faster cores finish the job and may become idle, while others are still busy computing until all squares are computed.

b. Calculate the processor utilization rate, which is the total amount of time the cores are busy (not idle) divided by the total execution time they are using all cores in the processor to execute the above application.

20. List and explain the types of cloud with an example and neat diagram.
21. Explain briefly the three service models of cloud with an example and neat diagram.