

(Time: 2  $\frac{1}{2}$  hours)

[Total Marks: 60]

- N. B.: (1) **All** questions are **compulsory**.  
 (2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.  
 (3) Answers to the **same question** must be **written together**.  
 (4) Numbers to the **right** indicate **marks**.  
 (5) Draw **neat labeled diagrams** wherever **necessary**.  
 (6) Use of **Non-programmable** calculators is **allowed**.

1. **Attempt any two of the following:** **12**
    - a. What are the different types of virtualization? Explain application virtualization.
    - b. Compare process virtual machines and system virtual machines.
    - c. Explain the taxonomy of virtual machine.
    - d. Explain virtualization, virtual machine and virtual machine monitor.
  
  2. **Attempt any two of the following:** **12**
    - a. Explain emulation, simulation and virtualization.
    - b. Explain resource partitioning and service partitioning.
    - c. Give an overview of the following virtual hardware:  
Processor, Memory, Hard Disk Drive
    - d. Explain the 3 C's while selecting the hardware necessary for server virtualization deployment.
  
  3. **Attempt any two of the following:** **12**
    - a. What requirements are created for VN to provide private communication paths between members of a group over a shared network? How are these requirements achieved?
    - b. Explain generic routing encapsulation.
    - c. Explain the hierarchical architecture of wide area network.
    - d. Explain the two main tasks to secure wide area networks.
  
  4. **Attempt any two of the following:** **12**
    - a. What are the different types of SCSI terminators? Explain.
    - b. Compare FCIP and iFCP. How SAN can be extended using FCIP and iFCP?
    - c. What is SNIA? Why is a model required for shared storage?
    - d. Explain the different architectures for design of storage virtualization.
  
  5. **Attempt any two of the following:** **12**
    - a. What are blades? What are different types of blades? What are the advantages of implementing blade systems versus rack systems?
    - b. What is clustering? Explain the evolution of clustering.
    - c. Explain server blades, I/O modules and management modules.
    - d. What are the CPU considerations for blades?
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