(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** calculator is **allowed**.

1. Attempt *any two* of the following: **12**

a. List and explain the virtualization technologies classified according to the virtualization taxonomy.
b. Discuss the benefits of Network Virtualization.
c. What are different design factors for data center networks?
d. What is the main function of VRF-lite? Explain with suitable example

2. Attempt *any two* of the following: **12**

a. Explain the concept behind DNS Server Load Balancing.
b. Discuss misconceptions about VLANs with the help of an example
c. Explain the device Virtualization and Virtual device contexts.
d. The Ether Channel between your LAN switch and the Internet router is not load-balancing efficiently. On the switch, there are several workstations with valid IP ranges. Which load-balance algorithms can be used in the switch in order to optimize this load balancing? Explain.

3. Attempt *any two* of the following: **12**

a. Differentiate between the RAID levels.
b. How traditional storage provisioning and virtual storage provisioning differ from each other? Explain.
c. Explain in detail components of Disk Arrays.
d. With the help of diagram explain SCSI architectural model.

4. Attempt *any two* of the following: **12**

a. Describe various server architectures in detail.
b. Explain storage definitions in UCS.
c. Write a note on Unified Computing and Service Profiles.
d. Why Type 1 hypervisor is considered more efficient than Type 2 hypervisor? Discuss.

5. Attempt *any two* of the following: **12**

a. What is Cloud Computing? What are different service models associated with the concept of cloud computing?
b. Illustrate in detail Software-Defined Network and Traditional networking differences.
c. Explain different virtual elements of Virtual Data Center.
d. Explain in detail the architecture of Virtual Security Gateway.
