**Time: 2½ Hours** **Total Marks: 75**

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 three* of the following:** **15**

a. With the help of suitable diagram explain the network design life cycle.

b. What is the E-commerce and Internet connectivity module?

c. Explain in detail different network audit tools.

d. Discuss the concept of Borderless Network Architecture.

e. Explain different layers of hierarchical network design.

f. Define the following terms: i) GLBP ii) HSRP iii) VRRP.

**2. Attempt *any three* of the following:** **15**

a. What is campus LAN design? What are the best practices for the same?

b. Explain Data Center Cooling.

c. Define the following term: Switches, Routers, Layer 3 switches, Repeater, Hub.

d. Explain STP (spanning tree protocol) toolkit mechanism.

e. What are data center foundation components?

f. Explain types of virtualizations.

**3. Attempt *any three* of the following:** **15**

a. Describe N+1, N+N, and N+N+1 WLC redundancy models.

b. Explain the terms: i) Intracontroller Roaming ii) Layer 2 Intercontroller Roaming

c. What is wireless technology? List out the different wireless implementations.

d. Explain VPN network design and state its type.

e. Write a short note on IPsec direct encapsulation.

f. Explain the concept of enterprise WAN architecture.

**4. Attempt *any three* of the following:** **15**

a. What is DNS? Explain process of DNS name resolution.

b. Write a short note on NAT (network address translation).

c. Explain IPV6 header structure.

d. Give comparison between IPV6 and IPV4 address.

e. State & explain different type of OSPF routers, categorization with neat & labeled diagram.

f. What are the different version types of IGMP. Explain in detail.

**5. Attempt *any three* of the following:** **15**

a. Explain Security policy and process.

b. What are the key aspects of Encryption fundamentals?

c. What are the recommended guidelines while implementing firewalls?

d. Write a short note on SNMP message version.

e. Explain the concept of NetFlow.

f. Write a short note on IPS/IDS.

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