

(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. Explain the different types of service field in IP datagram
 - b. Explain the following :
 - i) Proxy ARP ii) Gratuitous ARP
 - c. Explain the following:
 - i) Metrics ii) Convergence time iii) Neighbors iv) Hold-down timer
 - d. Explain the two node instability in distance vector routing protocol? What are the different techniques to resolve the problem?
2. Attempt any two of the following: 12
- a. What is the purpose of hello protocol? What information does hello packet contain?
 - b. What are designated routers and backup designated routers? Explain the election procedure of designated and backup designated router.
 - c. Explain the OSPF neighbor state machine.
 - d. Explain how database exchange takes place with and without a designated router.
3. Attempt any two of the following: 12
- a. What is IP Server level agreement? Explain the concepts of IP service level agreement.
 - b. Explain the different BGP neighbor states.
 - c. What are extension headers in IPv6? Explain the fields of extension headers in IPv6.
 - d. Explain the concept of IPv6 tunneling encapsulation and decapsulation.
4. Attempt any two of the following: 12
- a. How is High availability obtained in a campus? Explain.
 - b. What is a trunk? Explain VLAN trunking protocol.
 - c. Explain the three design modes for access distribution blocks.
 - d. Explain the architecture of Virtual Private LAN Service.
5. Attempt any two of the following: 12
- a. With the help of a neat diagram explain the architecture of data center.
 - b. What is storage area network? What are its components?
 - c. Discuss the different SAN extension protocols.
 - d. Explain the different design considerations for remote access virtual private networks.