Chapter 6

1. Describe in brief the Data Link Sublayers.
2. Explain how the Ethernet Sublayers are related to the frame fields.
3. Describes the Ethernet MAC Address and list out its responsibilities.
4. Explain the various frame fields of Ethernet.
5. Discuss about Unicast, Broadcast and Multicast MAC Address.
6. Explain how a switch builds its MAC address table and forwards frames.
7. Describe switch forwarding methods and port settings available on Layer 2 switch ports.
8. Compare the roles of MAC Address and the IP address
9. Describe the Purpose of ARP. Also, list out the issues with ARP
10. Describe the operation of IPv6 neighbour discovery.

Chapter 7

1. Configure initial settings on an IOS Cisco router
2. Configure two active interfaces in a Cisco IOS router.
3. Configure devices to use the default gateway.
4. Chapter 8
5. Describe the structure of an IPv4 address including the network portion, the host portion, and the subnet mask.
6. Explain the use of IPv4 addresses structure.
7. Compare the characteristics and uses of the unicast, broadcast and multicast IPv4 addresses.
8. Describe the types of IPv4 addresses
9. Explain public, private and reserved IPv4 addresses.
10. Describe the types of IPv4 addresses.
11. What are broadcast domain? What are the issues with large broadcast domains? Discuss how segmentation helps to resolve those issues.
12. Define Network Segmentation.
13. Briefly discuss subnet in IPv4.
14. Explain how subnetting segments a network to enable better communication
15. Calculate IPv4 subnet for a /24 prefix.
16. Explain in brief about VLSM.

Chapter 9

1. Explain the need for IPv6 addressing
2. Explain how IPv6 addresses are represented.
3. Compare types of IPv6 network addresses
4. Explain how to configure static global unicast and link-local IPv6 network addresses.
5. Explain how to configure global unicast addresses dynamically.

Chapter 10

1. Explain the purpose of the transport layer in managing the transportation of data in end-to-end communication.
2. Explain characteristics of TCP and UDP.
3. Describe the TCP header structure.
4. Describe the UDP header structure.
5. Explain how TCP and UDP use port numbers.
6. Discuss Advantages of UDP over TCP
7. Explain socket pairs with an example.
8. How does Socket differ from the Port?
9. Explain how TCP session establishment and termination processes facilitates reliable communication.
10. What do understand by 3-way Handshake in TCP communication? List out its functions.
11. Explain about the Control Flags used during the 3-way Handshake in TCP communication.
12. Explain how TCP protocol data units are transmitted and acknowledged to guarantee delivery.
13. Discuss about the reliability and flow control mechanism in TCP communication.
14. Compare the operations of transport layer protocols in supporting end-to-end communication.
15. What would happen if TCP were used instead of UDP for some applications that use UDP?