**Advanced Networking**

**Subjective Questions**

1. What are the various types of networks? Compare and contrast LAN, MAN and WAN.
2. Explain how a typical circuit route for a medium-distance call is established in PSTN.
3. Explain IP header format in detail with a diagram. Analyze the role of the field TTL in DOS attacks.
4. What is framing? Discuss the role of Data Link Layer in encapsulating and decapsulating a packet in a frame.
5. www is a distributed system running on the internet where the clients send their request through the web browser to the webserver, Web server takes this request, processes it and then sends back processed data to the client. In the above statement establish the importance of a domain name and IP address to the webserver.
6. If an IP address in a block is given in CIDR classless notation as 64.32.16.8/27 then find the following:

a) Number of addresses in the block, b) The first address & c) The last address

1. Explain the DNS hijacking concept along with a solution & example in detail
2. Write about the stateless address autoconfiguration (SLAAC) concept is DHCP.
3. Discuss the operation of VPN in detail with an example.
4. An ISP is granted a block of addresses starting with 190.100.0.0/16. The ISP needs to distribute these addresses to two groups of customers as follows:

i. The first group has 64 customers; each needs 256 addresses.

ii. The second group has 128 customers; each needs 128 addresses.

iii. Design the subblocks and give the slash notation for each subblock.

1. An organization is granted the block 130.34.12.64/26. The organization needs to have four subnets. What are the subnet addresses and the range of addresses for each subnet?
2. Explain special addresses in IPv4.
3. Differentiate between two tier and three tier enterprise network architecture.
4. Explain Global Unicast address in IPv6.
5. What are the three different types of inter-VLAN routing? Explain briefly.
6. What is an Ether Channel? Briefly explain the two different types of ether channels.
7. Compare layer 2 protocols Cisco Discovery Protocol (CDP) and Link Layer Discover Protocol (LLDP).
8. Briefly explain the following terms with respect to virtual LANs:
   1. Default VLAN
   2. Access Ports
   3. Trunk Ports
   4. DTP
   5. VTP
9. Explain 802.11 in detail.
10. Describe routing in a network? Explain the shortest path routing protocol.
11. State the importance of using a firewall in the network. Explain its types with neat diagrams.
12. Discuss in brief the WAN technology options with an example.
13. Define Network topology. Explain different types of network topologies used in LAN with diagram.
14. Explain different types of topologies with diagram. State their advantages and disadvantages.
15. Compare Star, bus and ring topologies.
16. Short Questions:
17. What do you mean by User mode, Privileged mode and configuration mode in routers? List any four commands used in these modes?
18. What are different memories that are used in CISCO routers.
19. Explain Verification commands: Ping, traceroute, telnet.
20. Explain VLAN and discuss its benefits.