

(viii) Identify the following topology which is known for its scalability and fault tolerance?

- a) Bus Topology
- b) Star Topology
- c) Mesh Topology
- d) Ring Topology

(ix) Identify What is the maximum range of Bluetooth technology?

- a) 10 meters
- b) 50 meters
- c) 100 meters
- d) 1 kilometer

(x) State Which of the following is not a function of the Data Link Layer?

- a) Framing
- b) Error Detection and Correction
- c) Flow Control
- d) Routing

(xi) Define Which protocol is used by the Network Layer to route packets across different networks?

- a) TCP
- b) UDP
- c) ARP
- d) ARP

(xii) Choose Which of the following is not a function of the Network Layer?

- a) Routing
- b) Fragmentation
- c) Error Correction
- d) Congestion Control

(xiii) Generalize the layer of OSI model which is responsible for framing and error detection?

- a) Data Link Layer
- b) Transport Layer
- c) Network Layer
- d) Presentation Layer

(xiv) Describe the purpose of an IP address?

- a) To identify a specific computer on a network
- b) To identify a specific user on a network
- c) To encrypt data transmitted over a network
- d) To authenticate users on a network

(xv) Choose Which of the following is a connection-oriented protocol ?

- a) UDP
- b) ICMP
- c) TCP
- d) HTTP

Group-B

(Short Answer Type Questions)

3 x 5=15

2. Discuss in detail about the packet-switched networks. (3)
3. Explain a point-to-point topology? How is it different from other network topologies? (3)
4. Describe the function of SMTP? (3)
5. Explain the role of the Domain Name System (DNS) in TCP/IP (3)
6. Suppose a system uses Stop and wait protocol with propagation delay 20 ms. If the frame size is 160 bits and bandwidth is 4kbps when calculate channel utilization of efficiency. (3)

OR

A router outside the organization receives a packet with the destination address 190.240.7.91/16. Show how it finds the network address to route the packet. (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

7. Distinguish between TCP and UDP. (5)
8. distinguish between Pure Aloha and Slotted Aloha ? (5)
9. Write a detailed note on the ISO-OSI reference model. (5)
10. Compare IPv4 and IPv6 datagram Headers. (5)
11. Why dynamic routing is preferred over static routing algorithm in a network, which changes continuously ? (5)
12. A router with IP address 192.165.88.10 and Ethernet physical address 21:45:AB:4F:66:CD has received a packet for a destination with IP address 192.165.78.23 and Ethernet physical address AB:B7:A2:4F:47:CD. Show the entries in the ARP request packet sent by the router. Encapsulate the ARP request packet in a data link frame. Fill all the fields. (5)

OR

Suppose an organization is given the block 190.100.0.0/16. The organization needs to divide the address into three groups of customers- i) 1st group has 64 customers; each need 256 addresses. ii) 2nd group has 128 customers; each need 128 addresses. iii) 3rd group has 128 customers; each need 64 addresses.

(5)

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