Class: TE (CSE)
Subject: Computer Networks-II (CN-II)

Question Bank

UNIT-1:

1) What is classful and classless addressing? Explain with suitable example.
2) What is CIDR? Explain concept of subnet, supernet and subnet mask.
3) Discuss the properties of Routing algorithm and briefly describe any two of the adaptive routing technique with suitable example.
1) Explain circuit, packet and hybrid switching.
4) What is circuit switching and packet switching? Why is packet switching more suitable for computer networks?
5) What is hierarchical routing? Discuss its advantages and disadvantages. What is the optimal number of hierarchy levels for a subnet with N-numbers of IMPs? What is corresponding number of table entries per IMP?
6) State the principle of optimality with regards to routing.
7) Is the path-vector routing algorithm closer to the distance-vector routing algorithm or to the link-state routing algorithm? Explain.
8) What is adaptive routing? With the help of an example explain flow based routing?
9) Explain centralized routing algorithm with suitable example.
10) What is the difference between flooding and broadcasting? Explain with neat diagram link state routing algorithm and all issues related to this algorithm
11) Explain the shortest path algorithm for routing. What are the matrices used for computing the shortest path? For the figure shown, show how the Dijkstra algorithm works for shortest path computing from node X to node Y.
12) How is a packet sent to a node when the computers are connected to a broadcast medium?
13) What is IP protocol? Give and explain its header format. Give address formats of IP.

14) An organization is granted the block 211.17.180.0/24. The administrator wants to create 32 subnets.

    a. Find the subnet mask
    b. Find the number of addresses in each subnet.
    c. Find the first and last address in first subnet.
    d. Find the first and last address in last subnet.
15) An IP datagram has arrived with the following partial information in the header(in hexadecimal):
             45000054 00030000 2006…..
    a. What is the header size?
    b. Is there any options in the packet?
    c. What is the size of data?
    d. Is the packet fragmented?
    e. How many more routers can the packet travel to?
    f. What is the protocol number of the payload being carried by the packet?

16) Explain the advantages of IPv6 when compared with IPv4.
17) List 3 protocols in the IPv4 network layer that are combined into a single protocol in IPv6.
18) Explain how the computer system transit from IPv4 to IPv6.
19) Compare ICMPv4 with IMPv6 along with header format.
20) Explain internetworking giving internal structure of network layer.
21) Can you explain why BGP uses the services of TCP instead of UDP?
22) Explain inter-domain and intra-domain routing.
23) Write short note on:
    a. BGP   b. RIP   c. OSPF d.   DVMRP   e.
24) Explain why PIM is called Protocol Independent Multicast.
25) What is the purpose of including the IP header and the first 8 bytes of datagram data in error reporting ICMP message.

UNIT-2:

1) What is congestion? How is it caused? What are the factors that contribute to congestion? Describe any one congestion control method with its advantages and disadvantages.
2) Enlist congestion control open loop and closed loop policies.
3) Explain following methods used for congestion control.
            a.   preallocation of buffers
            b.   choke packets
            c.   isarithmic congestion control
4) Explain various techniques to achieve good quality of service.
5) Explain leaky bucket algorithm.
6) Compare leaky bucket and token leaky bucket algorithm.
7) Explain RSVP protocol in detail
8) Write short note on:
            a.   Integrated service   b. Differential service

UNIT-3:
1) Which are the two header formats of ATM? Explain with diagram.
2) Discuss the architecture of ATM network.
3) What is LAN emulsion.
4) Explain mixed LAN architecture.

UNIT-4:
1) What are the various parameters of quality of service offered by the transport layer? Discuss their significance.
2) Explain transport primitives and give some valid sequence of OSI transport primitives.
3) Enlist the elements used by the transport layer protocol. And explain the connection establishment and connection release done by this layer.
4) What is the advantage of Go-back-n protocol? How is the parameter 'n' determined? Explain how the protocol works at transport layer in case of errors, lost packet or Acks?
5) In a network, the size of the receive window is 1 packet. Which of the sliding window protocol is being used by the network? Justify your answer.
6) Give a potential disadvantage when Nagle's algorithm is used on a badly congested network.

7) A source socket address is a combination of an IP address and a port number. Explain what each section identifies. Also explain how a client process finds IP address and port number to be inserted in a remote socket address.

8) Compare the TCP header and the UDP header. List the fields in the TCP header that are not part of the UDP header. Give reason for each missing field.

9) UDP is a message-oriented protocol. TCP is a byte-oriented protocol. If application needs to protect the boundaries of its message, which protocol should be used, UDP or TCP?

10) Explain what do the following valid sequences of service primitives mean. What are the conditions during which they occur?

11) What type of network service is assumed in designing OSI transport protocols class 3 and class 4? What are the salient features?

12) Explain in brief five variants of the OSI transport protocol.

13) Transport protocols resemble the data link layer protocol. Justify your answer.

14) Why is transport layer necessary even if its services are very similar to that of the network layer?

15) What is buffer? Explain different buffer management strategies used in transport protocol.

16) Explain the SCTP association establishment process?

17) What do you mean by concurrency control? Explain how concurrency managed in client-server architecture.

18) Write short note on:
   a.   Socket System call   b. Crash recovery

UNIT-5:

1) What is DHCP? Explain its various operations along with packet format.

2) What is the basic purpose of DHCP? Name the entities of DHCP.

3) What is BOOTP? What are the limitations of BOOTP and how it is overcome with DHCP?

4) We already have ARP and RARP protocols for host configuration then explain what is the need of DHCP protocol and how can DHCP be used for mobility and support of mobile IP with suitable example.

5) Explain static and dynamic address allocation in DHCP using option tag 53 and client transition diagram.

6) What is DNS? Explain it with header format and enlist the type of records used in DNS.

7) Explain the concept of name-address resolution and different techniques used for it.

8) Write short note on:
   a.   DDNS   b. Security of DNS.

9) What is the difference between FTP and TFTP protocol? Explain why the client issues an active open for control connection and a passive open for the data connection.

10) Explain command processing. Also enlist different types of commands along with example.
   Why should there be limitations on anonymous FTP? What could an unscrupulous user do?

11) Difference between hierarchical name-space and flat name-space.

12) Why do we need POP3 or IMAP4 for accessing electronic mail?

UNIT-6:

1) What is SNMP protocol? Explain in detail.

2) Explain functions of Network management protocol.

3) With a neat diagram explain H.323 protocol.