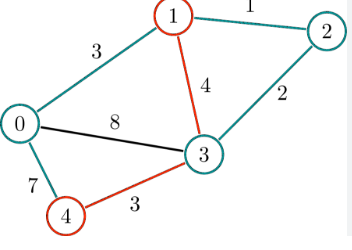
**SIMATS ENGINEERING COLLEGE**

**CSAO733 –COMPUTER NETWORKS FOR SOCIAL MEDIA**

**Assessment Test –II - 100 Marks**

1. For the network given in Figure, give global distance–vector tables like Initial/Final routing table those of when (5)
2. Each node knows only the distances to its immediate neighbors.
3. Each node has reported the information it had in the preceding step to its immediate neighbors.



1. An organization is granted the block 16.0.0.0/8. The administrator (3)

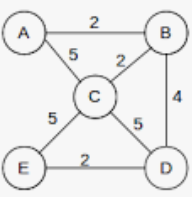
wants to create 500 fixed-length subnets.

a. Find the subnet mask.

b. Find the number of addresses in each subnet.

c. Find the first and last addresses in subnet 1.

1. An address space has a total of 1024 addresses. How many bits are needed to represent an address? (2)
2. Calculate the checksum for the following ICMP packet:  
   Type: Echo Request Identifier: 123 Sequence number: 25 Message: HAI (5)
3. How many multicast addresses can be supported for the 1Pv4 protocol in Ethernet?
4. Compress the following IPv6 address as much as possible: 2001:0db8:85a3:0000:0000:8a2e:0370:7334
5. Expand the following compressed IPv6 address into its full form: FE80::B3FF:FE1E:8329
6. How many host addresses are available in an IPv6 /64 subnet?
7. Given the IPv6 address 2001:0db8:abcd:0012::1 and prefix /48, what is the network prefix
8. An address space uses the three symbols 0, 1, and 2 to represent addresses. If each address is made of 10 symbols, how many addresses are available in this system? (2)
9. Given 2001:db8:abcd::/56, how many /64 subnets can you get?
10. Consider the network in Figure. Compute routing using link-state routing algorithm (3)



1. What is the value of the rwnd for host A if the receiver, host B, has a buffer size of 7000 bytes and 2000 bytes of received and unprocessed data? (2)
2. Suppose a TCP connection is transferring a file of 6000 bytes. The first byte is numbered 10,001. What are the sequence numbers for each segment if data are sent in six segments, each carrying 1000 bytes? (2)
3. What is the size of the window for host A if the value of rwnd is 5000 bytes and the value of cwnd is 3753 bytes. (2)
4. A TCP sender sends a segment with Sequence Number = 1000 and payload = 500 bytes. What will be the Acknowledgment Number if all data is received correctly? (2)
5. If the Maximum Segment Size (MSS) is 1000 bytes, and the round-trip time (RTT) is 50 ms, what is the maximum theoretical throughput of TCP in bytes/second if the window size is 20,000 bytes? (2)
6. The following is a dump of a TCP header in hexadecimal format 053200217 000000001 00000000 500207FF 00000000 (5)

1) What is the source port number?

2) What is the destination port number?

3) What is sequence number?

4) What is the acknowledgement number?

1. A block of addresses is granted to a small organization. We know that one of the addresses is 205.16.37.39/28. What is the first address in the block? (2)
2. An ISP is granted a block of addresses starting with 190.100.0.0/16 (65,536 addresses). The ISP needs to distribute these addresses to three groups of customers as follows: (5)

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

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

c. The third group has 128 customers; each needs 64 addresses.

1. Expand the address 0:15::1:12:1213 to its original (1)
2. Change the following IP addresses from dotted-decimal notation to binary notation.
3. 114.34.2.8 (2)
4. 129.14.6.8
5. Find the class of the following IP addresses. (2)

a. 11110111 11110011 10000111 11011101

b. 10101111 11000000 11110000 00011101

1. What is the type of each of the following addresses? (2)
2. FE80::12
3. FEC0::24A2
4. In an IPv4 packet, the value of HLEN is 1000 in binary. How many bytes of options are being carried by this packet?
5. Find the class of the following IP addresses. (3)

a. 208.34.54.12

b. 238.34.2.1

c. 114.34.2.8

d. 129.14.6.8

1. The following is a dump of a UDP header in hexadecimal format. (5)

06 32 00 OD 00 lC E2 17

1. What is the source port number?
2. What 1s the destination port number!
3. What is the total length of the user datagram?
4. What is the length of the data?
5. Find the netid and the hostid of the following IP addresses. (3)

a. 114.34.2.8

b. 132.56.8.6

c. 208.34.54.12

1. In TCP, if the value of HLEN is 0111, how many bytes of option are included in the segment
2. In a connection, the value of cwnd is 3000 and the value of rwnd is 5000. The host has sent 2000 bytes which has not been acknowledged. How many more bytes can be sent? (2)
3. A client has a packet of 68,000 bytes. Show how this packet can be transferred by using only one UDP user datagram. (2)
4. In a block of addresses, we know the IP address of one host is 25.34.12.56/16. (2)

What are the first address (network address) and the last address in this block?

1. An organization is granted the block 16.0.0.0/8. The administrator wants to create 500 fixed-length subnets. (5)

a. Find the subnet mask.

b. Find the number of addresses in each subnet.

c. Find the first and last addresses in subnet 1.

d. Find the first and last addresses in subnet 500.

1. In packet switching, data is divided into small units called:

a) Frames b) Packets c) Segments d) Datagrams

1. In circuit switching, what happens after the dedicated path is established?
2. Data is transmitted in packets
3. The path is immediately released
4. The path remains dedicated until the end of the communication
5. Packets are routed independently
6. What IP address class allocates 8 bits for the host identification part?

a) Class A b) Class B c) Class C d) Class D

1. Compare Connection oriented and connectionless service (8)
2. We need three types of address. i.e each computer has 3 addresses IP, MAC and port number while using with the internet. Why? (2)
3. Give an overview of flow control and congestion control TCP (6)