1. A block of addresses is granted to a small organisation One of the addresses granted is 205.16.37.39 / 28 What is the first address of the block ? What is the last address of the block ? What is the total number of addresses ?
2. A network on the Internet has a subnet mask of 255.255.252.0 What is the maximum number of hosts it can handle?
3. Convert the following IPv4 addresses to IPv6. i. 62.54.165.38 ii. 229.154.76.90
4. Convert the following IPv6 address to IPv4: i. 2001:db8:3333:4444:5555:6666:7777:8888
   ii. 2001:db8:3333:4444:CCCC:DDDD:EEEE:FFFF
5. Find the class of the address:
   i. 227.12.14.87 ii. 00000001 00001011 00001011 11101111
6. Assume TCP connection is established between sender (S) and Receiver (R).Initial sequence number of S is 9000 and initial sequence number of R is7000. A sends "abcdef" after connection establishment, B sends "xyzfg"later. Show the timing diagram and the sequence and acknowledgementnnumbers.
7. Suppose Host A sends two TCP segments back to back to Host B over aTCP connection. The first segment has sequence number 110; the second has sequence number 150. With the appropriate timing diagram answer the following.
   i. How much data is in the first segment?
   ii. Suppose that the first segment is lost but the second segment arrives at B. In the acknowledgment that Host B sends to Host A, what will be the acknowledgment number?
8. A large number of consecutive IP addresses are available starting at198.18.0.0. RVCE, PES, RVIT and SJBIT request 4000, 2000, 4000 and 8000 IP addresses. Give the IP address range and mask for each of them.
9. A router has the following CIDR entries in its routing table:

Address Mask	Next Hop
C4.5E.2.0/23	A
C4.5E.4.0/22	B
C4.5E.C0.0/19	C
C4.5E.40.0/18	D
C4.4C.0.0/14	E

What is the next hop to which the following will be delivered : (a) C4.5E.05.09 (b) C4.4D.31.2E (c) C4.5E.03.87 (d) C4.5E.7F.12