Exercise 1

Consider a datagram network using 32-bit host addresses. Suppose a router has four links, numbered 0 through 3, and packets are to be forwarded to the link interfaces as follows:

Destination Address Range	Link Interface
11100000 00000000 00000000 00000000 to 11100000 11111111 11111111 11111111	0
11100001 00000000 00000000 00000000 to 11100001 00000000 11111111 11111111	1
11100001 00000000 00000000 00000000 to 11100001 11111111 11111111 11111111	2
Otherwise	3

a. Provide a forwarding table that has four entries, using longest prefix matching, and forwards packets to the correct link interfaces.

b. Determines the appropriate link interface for datagrams with the following destination address:

Destination Address	Which link interface ?
11001000 10010001 01010001 01010101	
11100001 00000000 11000011 00111100	
11100001 10000000 00010001 01110111	
11100000 00111000 11001100 01011101	

Exercise 2

Suppose an ISP owns the block of addresses in form of 201.15.144.0/20. It wants to divide its address block into four equal-sized continuous address blocks and give them to four organizations. What are the prefixes (of form a.b.c.d/x) for these four subnets?