Assignment 2

Question 1

Suppose a router has 4 links, and packets are to be forwarded as follows:

Destination address range	Link interface
00000000 00000000 00000000 00000000 through 00001111 11111111 11111111 11111111	0
00110000 01000000 00000000 00000000 through 00110000 01000111 11111111 11111111	1
01000011 01000000 00000000 00000000 through 01000011 01111111 11111111 11111111	2
otherwise	3

(a) Provide a forwarding table that has 4 entries.

(b) Find the link interface for datagrams with the following destination addresses.

00110000 01001001 01010001 01010101
00110000 01000100 11000011 00111100

[1 mark]

Question 2

Consider a host sends a 3300-byte datagram into a link that has an MTU of 500 bytes.

(a) How many fragments are generated?

(b) What is the length of the last fragment?

[1 mark]

Question 3

A network contains 2 routers and a number of hosts. Router 1 links with a number of hosts and forms a subnet A, and also links with router 2 and forms a subnet B. Router 2 links with a number of hosts and forms a subnet C, and also links with router 1 and forms a subnet D.

(a) Assign network addresses to each of these 4 subnets with the following constraints:

all addresses must be allocated from 214.9.25/24
subnet A should have enough addresses to support 60 interfaces
subnet B should have enough addresses to support 14 interfaces
subnet C should have enough addresses to support 28 interfaces
subnet D should have enough addresses to support 6 interfaces

(b) Using your answer in part (a), provide the forwarding tables for the routers.

[1 mark]

Submission:

Answer the questions in a MS Word document file. Name the file with your student ID number, e.g. 12345678.docx. **One mark will be deducted for wrong file name.** Submit the assignment by e-mail on or before **14 March 2021**. **1 mark/day will be deducted for late submission.**