COMSATS University Islamabad (CUI)

Department of Computer Science

CSC339- Data Communication and Computer Networks

BSE-5B FALL 2021

Quiz-2

Question 1 **Marks 3**

Consider a user with a 10 Mb/s DSL connection, requesting a web page with 10 KB of text and links to six images, each of which is 100 Kbytes long. Assume that the user is in New York and the web server is in LA, and the one-way propagation delay is 20 ms.

a) How long does it take to download the web page + images using non-persistent HTTP, with one connection open at a time?

b) How long does it take if the browser opens multiple connections?

c) How long does it take using persistent HTTP?

Ans:

a) 2*(6+1) *40ms+(10,000+500,000) *8/10^7= sec

b) 2*(1+1) *40ms+(10,000+500,000) *8/10^7= sec

c) 3*40ms+(10,000+500,000) *8/10^7= sec

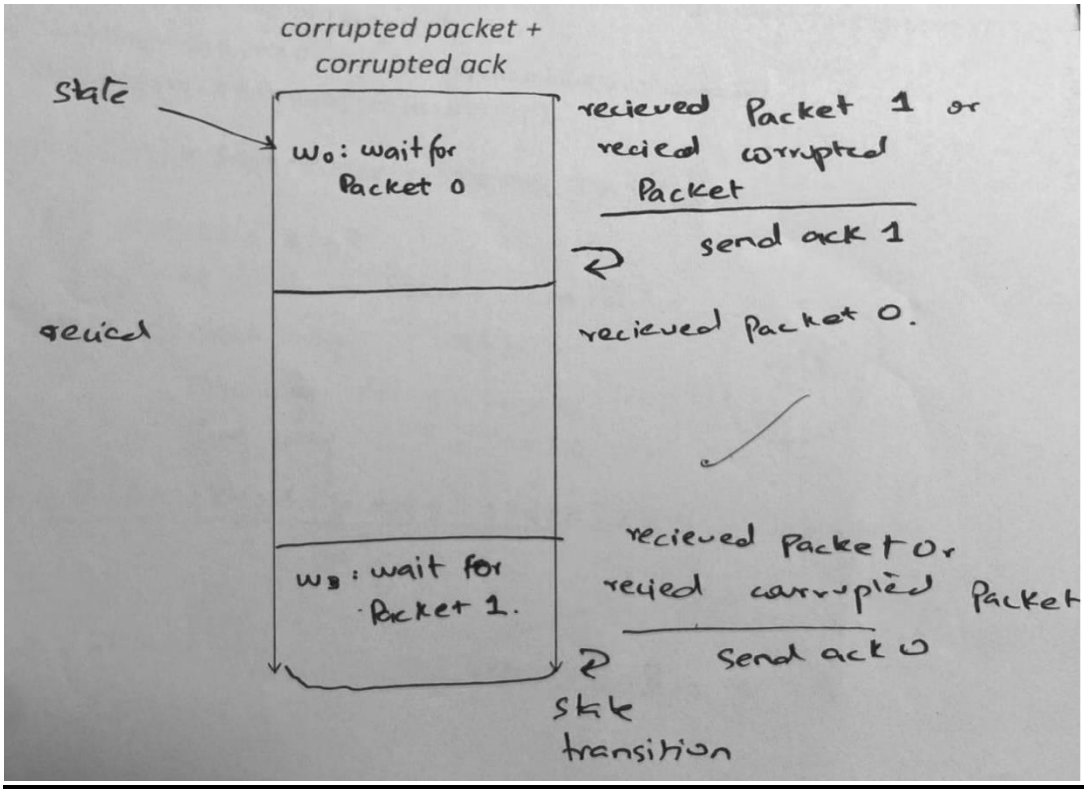
Question 2 Marks 2

Consider following scenario for RDT 2.2 (no losses). Two packets are sent.

- The first packet and its ack are not corrupted
- The second packet is corrupted, but when it is sent a second time, the packet is not corrupted, but the ack is

Draw a time-space diagram describing this scenario, showing how RDT 2.2 recovers and delivers packets to the receiving application.

Ans:



Question 3 Marks 5

I. Consider a network company is granted the site address **181.56.0.0**. The company needs 1000 subnets.

a) What will be the default and new subnet mask after subnetting?

b) Please design the subnets. Also write network and broadcast address for each subnet id.

II. A supernet has a first address of 205.16.32.0 and a supernet mask of 255.255.248.0. A router receives three packets with the following destination addresses:

205.16.37.44

205.16.42.56

205.17.33.76

Which packet belongs to the supernet?

Ans:

The number of 1s in the default mask is 16 (class B)

The company needs 1000 subnets. This number is not a power of 2. The next number that is a power of 2 is 1024 (210). We need 1 more 1s in the subnet mask. The total number of **1s** in the subnet mask i 26 (16 + 10).

The total number of 0s is 6 (32 − 26).

The mask is

255.255.255.192.The number of subnets is 1024.The number of addresses in each subnet is 26 (6 is the number of 0s) or 64.