The following is a list of possible questions for our Quiz #2 on September 5th. Some of the questions will not be asked in the quiz. All the questions that will appear in the quiz will appear exactly as shown below (however, parameters may be changed). The quiz is closed textbook, closed notes and closed neighbors. Note that the questions, which did not appear in this quiz, still may appear in the exams.

#1: What is a protocol (define “network protocol” by providing the three keywords)?

A protocol is (1) _______________, (2) _______________ and (3) ____________.

Give two examples of the existing network protocols.

#2: What is an interface (define “interface” by providing the three keywords)?

An interface is (1) _______________, (2) _______________ and (3) ____________.

#3: What is “layered structure” for a protocol?

#4: Why we want “layered structure” for a protocol? Name the three benefits (please mention those we discussed in the class – you do NOT have to describe them).

#5: What is the primary tradeoff in using “layered architecture”?

#6: Why do some computer networks use packets to transmit data? Provide one primary advantage and disadvantage in using packets for data transmission.

#7: Answer the following questions to describe what packet header is:

(1) What do packets consist of?

(2) Where is the packet header?

(3) What kind of information is in the packet header (you need to name at least two different types of information)?

#8: What is “packet encapsulation”? What is it for (i.e., what is the purpose of “packet encapsulation”)?

#9: If network protocols are implemented without “packet encapsulation”, what problems would we have?

#10: Do the two terms, “peer-to-peer” and “point-to-point” mean the same concept?

#11: What is the counter concept of “peer-to-peer”? 
#12: What is the counter concept of “point-to-point”?

#13: Name each layer of the OSI seven-layer model (from low level (= layer 1) to high level).

#14: Why don’t network applications perform actual network data transmissions (instead, “protocol stack” does the work)?

#15: What are the major advantages in using “network protocols”? What are the major disadvantages in using “network protocols”?

#16: Show the TCP/IP protocol suite on top of the OSI 7-layer reference model.

#17: What are the two internal components in packets (packets for network data transmissions)?

#18: What are the five key words that describe what is “socket” (you do NOT have to describe them, just name the five key words)?

#19: What is the client/server model (describe the concept of the client/server model)?

#20: What are “blocking function calls”?

#21: Sketch the communication between a client and a server for Project Phase 1 using socket (show the direction of messages and identify which functions are blocking functions).

#22: Describe what “socket ( )” system call (API) will perform with a picture.

#23: Describe what “bind ( )” system call (API) will perform with a picture.

#24: Describe what “listen ( )” system call (API) will perform with a picture.

#25: Describe what “accept ( )” system call (API) will perform with a picture.

#26: Describe what will happen when an incoming connection request from a client happens for “accept ( )” system call (with a figure).

#27: Describe what “(TCP) port” is. What is the primary purpose of “ports” (i.e., why no “IP address is not enough to specify a destination of a socket connection)?

#28: How can we find open TCP ports at a host computer?

#29: Why “accept” function duplicates a connection on establishing a connection?