International Islamic University Chittagong

Department of Electronic and Telecommunication Engineering

Final Examination, Spring 2019

Course Code: ETE-4729/4819

Course Title: Computer Networks / Computer Networks and Security

Full Marks: 50 Time: 2h 30min

[Answer any two from Group-A and any three from Group-B of the following questions]

Group-A

1.a)	Design a flow diagram for the following given scenario: The first frame is sent and acknowledged. The second frame is sent, but lost. Aftertime-out, it is resent. The third frame is sent and acknowledged, but the acknowledgement is lost. The frame is resent. The network layer at the receiver site receives two copies of the third packet.	**5**
b)	Design a flow diagram for the following given scenario: Considering the above scenario in 1(a) what will be solution to prevent duplicates. Design the proper flow diagram.	**5**
2.a)	Show the occupation of the address space in classful addressing.	**2**
b)	An organization is granted a block of addresses with the beginning address 14.24.74.0/24. The organization needs to have 3 subblocks of addresses to use in its three subnets: one subblock of 10 addresses, one subblock of 60 addresses, and one subblock of 120 addresses. Design the subblocks. Also represent the resulted design using figure.	**8**
3.a)	What is the purpose of including the IP header and the first 8 bytes of datagram data in the error reporting ICMP messages?	**3**
b)	Host A sends a datagram to host B. Host B never receives the datagram and host A never receives notification of failure. Give two different explanations of what might have happened.	**4**
c)	In a class C subnet, we know the IP address of one of the hosts and the subnet mask as given below: IP Address: 202.44.82.16 Subnet mask: 255.255.255.192 What is the first address (subnet address)? What is the last address?	3

Group-B

4.a)	Explain Process-to-Process communication from 'network layer versus transport layer' point of view.	**4**
b)	For the following given content of a UDP header in hexadecimal format, CB84000D001C001C Find: (i) What is the source port number? (ii) What is the destination port number? (iii) What is the total length of the user datagram? (iv) What is the length of the data? (v) Is the packet directed from a client to a server or vice versa? (vi) What is the client process?	**6**

5.a)	Explain with example figure: i) Client-server paradigm ii) Peer-to-peer paradigm	**5**
b)	Explain with Uniform Resource Locator (URL) with proper examples.	**5**
6.a)	What do you think would happen if the control connection is accidentally severed during an FTP transfer?	**2**
b)	Assume there is a server with the domain name *www.uncommon.com* **a.** Show a request that asks for information about a document at /bin/users/file. Use at least two general headers and one request header. **b.** Show the response to part **a.** for a successful request.	**5**
c)	Why is a connection establishment for mail transfer needed if TCP has already established a connection? Explain.	**3**
7.a)	Write about User Datagram Protocol and User datagram packet format. Also briefly write about TCP, SCTP and Web server	**6**
b)	Suppose a TCP connection is transferring a file of 5000 bytes. The first byte isnumbered 1001. What are the sequence numbers for each segment if data are sent infive segments, each carrying 1000 bytes?	**4**