COMILLA UNIVERSITY
Faculty of Engineering
Department of Computer Science & Engineering
3rd Year 2nd Semester B. Sc. (Engg.) Final Examination-2015

Course Code: CSE-328 **Course Title:Computer Networks**
Full Marks: 60 **Time:3 Hrs.**

(Answer any five from the following questions)

1. a) Show the comparison betweenOSI and TCP/IP reference model. 3

   b) Mention four critiques of OSI model and protocol. Sketch a diagram to show the overview of the internet. 1+2=3

   c) Define broadcast and point-to-point link. Mention five service primitives for implementing a simple connection oriented service. 1+1=2

   d) Distinguish between connection oriented and connectionless service. 2

   e) How packets sent in a simple client-server interaction on a connection-oriented network? 2

2. a) Show the comparison between LED and semiconductor laser. 2

   b) Mention the key difference between an artificial satellite and real satellite. 2

   c) Define Public Switched Telephone Network (PSTN). Draw the structure of a telephone system and explain its major components. 1+4=5

   d) Compare between circuit switched and packet switched networks. 3

3. a) 'The data link layer has a number of specific functions'-discuss the function. Show the relationship between packets and frame. 2+1=3

   b) Describe the following framing techniques: 2+2=4

      (i) Flag bytes with byte stuffing.

      (ii) Starting and ending flags, with bit stuffing.

   c) Define sliding window protocol. Explaina simplex stop-and-wait protocol. 4

   d) What is piggybacking? 1

4. a) Find the error of the following IP address 111.56.045.78and 75.45.301.14 2

   b) Change the following IP address from binary notation to dotted-decimal notation. 2

      10000001 00001011 00001011 11101111

   c) Given the network address 132.21.0.0, find the class, the block, and the range of the addresses. 3

   d) A company is granted the site address 201.70.64.0 (class C). The company needs six subnets. Design the subnets. 3

   e) A company needs 600 addresses. Which of the following set of class C blocks can be used to form a supernet for this company? 2

      (i) 198.47.32.0 198.47.33.0 198.47.34.0

      (ii) 198.47.32.0 198.47.42.0 198.47.52.0 198.47.62.0

      (iii) 198.47.31.0 198.47.32.0 198.47.33.0 198.47.52.0

      (iv) 198.47.32.0 198.47.33.0 198.47.34.0 198.47.35.0

5. a) Define High-Level data link control (HDLC). Mention three features of point-to-point protocol. 2+2=4

b) For channel allocation problem, explain static channel allocation in LANs and MANs. 3

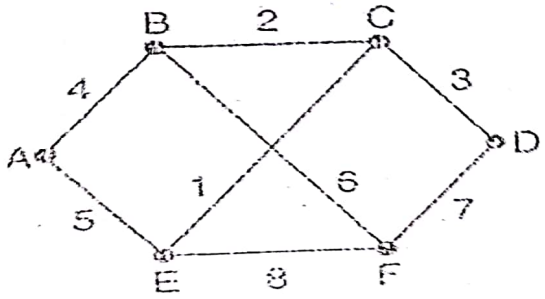
c) Write down the comparison between 802.11 with 802.16. 2

d) Sketch a state diagram for a simple connection management scheme. 3

6. a) Define the terms: i) Flooding and ii) Routing Algorithm. 1+1=2

b) Show the comparisonof datagram and virtual-circuit subnets. 4

c) Explain link state routing algorithm. From the following network, 3+3=6



(i) Build link state packets.

(ii) Distribute the link state Packet buffer for router B.

7. a) Why does stop and wait protocol possess waste of bandwidth? How we can improve the channel utilization? 3

b) Why does congestion happen in the real working computer network? 2

c) What is Slow Start? What is the background idea of this technique? 3

d) TCP shows the elasticity by using slow start algorithm-explain the principle. 4

8. a) What does happen when a packet of size 6000 byte datagram travel through a ethernet network of size 1500 byte? 2

b) Show that the Network Address Translation effectively utilizes the available IP address. 3

c) Why HTTP is called 'pull' and HTML is called 'push' operation protocol? 2

d) Discuss different access protocols used in the electronic mail operation. 3

e) What are the differences between local name server and authoritative name server? 2