UNIVERSITY OF THE PUNJAB

Roll No. .....

Sixth Semester - 2017
Examination: B.S. 4 Years Programme

PAPER: Computer Networks (CMP) **TIME ALLOWED: 30 mins.**
Course Code: IT-309 **MAX. MARKS: 10**

Attempt this Paper on this Question Sheet only.

Question No 1: Multiple Choice Questions **[1x10=10]**

1. In the _____ protocol we avoid unnecessary transmission by sending only frames that are corrupted.
   a) Stop and Wait b) Go-Back-N
   c) Selective Repeat d) none

2. Which of the following is not a digital-to-analog conversion?
   a) ASK b) PSK
   c) FSK d) AM

3. _____ encoding has a transition at the middle of each bit.
   a) RZ b) Manchester
   c) Differential Manchester d) All

4. In the OSI model, what is the main function of the transport layer?
   a) node-to-node delivery b) process-to-process message delivery
   c) synchronization d) updating and maintenance of routing tables

5. To solve the looping problem, bridges on LAN use the _____ algorithm, to create a loop less topology.
   a) Dijkstra's b) Distance Vector
   c) Spanning tree d) none

6. In _____ switching, there is no resource allocation for a packet.
   a) datagram b) virtual circuit
   c) message d) circuit

7. A generator that contains a factor of ____ can detect all odd-numbered errors.
   a) x b) x + 1
   c) 1 d) none

8. A Go-back-N ARQ uses a window of size 15, how many bits are needed to define the sequence number
   a) 16 b) 5
   c) 4 d) none

9. A stream of packets from a source to a destination is called data _____
   a) congestion b) flow
   c) process d) 8

10. If Ethernet destination address is 07:01:02:03:04:05, then this is a _____ address.
    a) unicast b) multicast
    c) broadcast d) anycast

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PAPER: Computer Networks (CMP) | **TIME ALLOWED: 2 hrs. & 30 mins.**
Course Code: IT-309 | **MAX. MARKS: 50**

Attempt this Paper on Separate Answer Sheet provided.

Question No 2: Give the short answers of the following short Questions? [2x10=20]

1. What are the three types of routing decision taken by a bridge for an incoming frame?
2. Write the names of any four Discuss different types of delays in packet switched networks?
3. Differentiate between inter domain and intra domain routing protocol?
4. Encode the following bit stream, 11001001 with the NRZ-L and Manchester encoding schemes.
5. Using a 5 bit sequence number, what is the maximum size of the send and receive windows for each of the following protocol:
   a. Go-Back-N ARQ
   b. Selective Repeat ARQ
6. For n devices in a network, what is the number of cable links required for a mesh topology?
7. Determine the level of sensitivity ('High' or 'Low') of each application in the following table for given parameters.

Application	Reliability	Delay	Jitter	Bandwidth
Text Chat				
Online Gaming				

8. What is a socket address?
9. What is a default mask?
10. How Http is similar to FTP?

Question No 3: Give the answers of the following Questions? [6x5=30]

(1) Discuss the propagation modes in Fiber Optics?

(2) Given a remainder of 111, a data unit of 10110011, and a divisor of 1001, is there any Error in data unit?

(3) Discuss CSMA/CD protocol?

(4) Which of the following are easy/difficult to handle in Virtual-Circuit and Datagram subnets, and why? (Answer just in one line for each case)
   i. Router memory space
   ii. Address parsing time
   iii. Quality-of-service
   iv. Congestion control

(5) Consider the class 'B' address: 170.110.88.0. We need 56 subnets in such a way that each subnet may host up to 32 hosts.
   a) How many bits will be required for subnet ID?
   b) How many usable subnets will be there?
   c) What will be the subnet mask?
   d) What will be the address of 3rd host of 2nd subnet?

(6) How does standard TCP react in case of Congestion?