Philadelphia University Faculty of Engineering Department of Computer Engineering		Date:- 22/11/2017 Allowed time:- 50 Minutes

Computer Network (630411,650522) **First Exam**

Student Name: - ……..... **ID: - ……**

Question 1: choose the correct answer for the following questions. 5 Points

1. The _____ layer is concerned with the exchange of data between an end system and the network to which it is attached.

   A) internet B) physical C) host-to-host D) network access

2. A _____ consists of two insulated copper wires arranged in a regular spiral pattern.

   A) coaxial cable B) optical fiber C) cable D) twisted pair

3. The _____ $d(v_1, v_2)$ between two n -bit binary sequences v_1 and v_2 is the number of bits in which v_1 and v_2 disagree.

   A) check bits B) FCS C) ECC D) Hamming distance

4. _____ enables a receiver to regulate the flow of data from a sender so that the receiver's buffers do not overflow.

   A) Flow control B) Link control C) Data control D) Error control

5. The flow control in which the destination can stop the flow of data simply by withholding acknowledgment of the receipt of a frame is _____ flow control

   A) data B) stop-and-wait C) frame acknowledgment D) ARQ

Question 2: The following wave form represent a differential Manchester Encoding. Determine the beginning and end of each bit period and give the data sequence. 2 Points

Question 3: Describe the scrambling techniques used by HDB3 encoding technique. 2 Points.

Question 4: A user on a UNIX host wants to transfer a 4000-byte text file to a Microsoft Windows host. transfer was reported as being performed successfully, the Windows host reports the resulting file size is 4050 bytes, rather than the original 4000 bytes. Does this difference in the file size imply an error in the data transfer? Why or why not? 2 Points

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Question 5: The following frame of Data arrived at receiver 4 Points.

E3 4F 23 96 44 27 99 F2

The check sum field is **19 FF**, is the frame valid (no Error) (show your calculations)

Question 6: A and B are two station exchanging information using HDLC protocol. Use diagram to Show the messages exchange between A and B when the following events occur. Show the packet types and the sequence numbers of sender N(S) and receiver N(R). 5 Points

1. A send information packets 0,1 and B receive them.
2. B send information packet 0 and A receive them.
3. A send information packets 2,3 and B receive them.
4. B send Acknowledgement packet to A with busy condition.
5. A send supervisory packet to B to check B state.
6. B is ready to receive information from A
7. A send information packet 4 to B.
8. B send Acknowledgement packet to A.