Total Number of Pages: 02   **B.Tech**
                                                                                   PCCS4302

5th Semester Regular / Back Examination 2015-16
DATA COMMUNICATION AND COMPUTER NETWORK
BRANCH(S): CSE,IT
Time: 3 Hours
Max marks: 70
Q.CODE: T252
Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.

Q1   Answer the following questions: (2 x 10)
- a) Why IP protocol is always combined with TCP protocol?
- b) What do you mean by traffic shaping? Name two methods to shape traffic.
- c) What is the difference between Permanent Virtual Circuit and Switched Virtual Circuit?
- d) Assuming the divisor polynomial for CRC is $x^8+x^5+x^3+x+1$, find the binary equivalent of the divisor.
- e) What is the purpose of twisting in a Twisted pair cable?
- f) In HDLC, what is bit stuffing and why is it needed?
- g) What does RG Rating specify?
- h) What is the difference between open-loop congestion control and closed-loop congestion control?
- i) Distinguish between Next-Hop routing, Host-specific routing and Network-Specific Routing.
- j) Assuming classful addressing, find the network address of a host having IP address 125.23.57.67. What is the broadcast address of this network?

Q2 a) Why there is more than one type of frames in HDLC? Give an account of the frame format of I-Frame in HDLC protocol, describing the function of each field.   (5)

    b) Given a 10 bit sequence of 1010110010 and a divisor of 1101. Find the CRC and check your answer.   (5)

Q3 a) What is a Bluetooth? Give an account of the detailed architecture of Bluetooth and discuss its various layers.   (5)

    b) What do you mean by Quality of service? What are the techniques used to improve QOS? Explain any one in detail.   (5)

Q4   What do you mean by Line Coding? Explain in brief various line encoding schemes. Given a binary data stream of 01101001. Encode this stream using the following encoding streams: (10)
- i.   NRZ-I
- ii.   RZ
- iii.   Manchester encoding
- iv.   Differential Manchester encoding

Q5 a) Explain the procedure of CSMA/CD mechanism with a suitable flow   (5)
       diagram. What is the purpose of jam signal in this mechanism? How
       this mechanism differs from CSMA/CA?
    b) What do you mean by topology? Discuss various types of topologies   (5)
       with their advantages and disadvantages.

Q6 a) Discuss various operation mechanisms of Stop-and–Wait ARQ and   (5)
       explain how it differs from Go-back-N ARQ mechanism?
    b) What do you mean by client-server model? Explain the working   (5)
       principle of connectionless Iterative server with suitable client and
       server algorithms.

Q7 a) Discuss the datagram format of IPV4 protocol with suitable schematic (5)
       diagram. What are the advantages of IPV6 over IPV4?
    b) Mention the difference between Traditional Ethernet and Fast Ethernet. (5)
       Discuss various sub layers in Physical layer of a Fast Ethernet.

Q8   Write short Notes on (Any Two)   (5 x 2)
    a) PPP state transition Diagram
    b) Transmission Impairment
    c) Hamming Encoding Algorithm
    d) Frame Relay