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Total number of printed pages – 2

B. Tech
PEEC 4304

Sixth Semester (Special/Back) Examination – 2013

COMPUTER NETWORK AND DATA COMMUNICATION

BRANCH : EC, EEE, ELECTRICAL, ETC, IEE

QUESTION CODE : E 381

Full Marks – 70

Time : 3 Hours

Answer Question No. 1 which is compulsory and any **five** from the rest.

The figures in the right-hand margin indicate marks.

- 1: Answer the following questions : 2×10
- (a) Distinguish between half-duplex and full-duplex transmission modes.
 - (b) What is the difference between network layer delivery and transport layer delivery ?
 - (c) A line has a Signal-to Noise ratio of 1000 and bandwidth of 4000 KHz. What is the maximum data rate supported by this line ?
 - (d) What is Nyquist data rate for a noiseless channel ?
 - (e) What is the major advantage of shielded twisted pair over unshielded twisted pair cable ?
 - (f) What do you mean by bit stuffing ?
 - (g) What is the difference between Permanent Virtual Circuit and Switched Virtual Circuit ?
 - (h) What is Nagle's algorithm ?
 - (i) How HTTP differs from WWW ?
 - (j) Distinguish between connection oriented protocol and connectionless oriented protocol.
2. (a) What do you mean by Block Coding ? Discuss the major steps used in block coding, giving examples of some block codes. 5
- (b) Draw the transition state diagram of a PPP connection and discuss each of the states. 5



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3. (a) What do you mean by Transmission Impairment ? Discuss various common types of transmission impairments. 5
- (b) Explain CSMA/CA procedure with a suitable flow diagram. How it differs from CSMA/CD ? 5
4. Discuss various types of operations of a Stop-and-Wait and a Go-back-N ARQ mechanism. Explain how Go-back-N ARQ mechanism differ from Selective Repeat ARQ mechanism ? 10
5. (a) Given a 10 bit sequence of 1010011110 and a divisor of 1011. Find the CRC and check your answer. 5
- (b) Discuss various sub layers in Physical layer of a Traditional Ethernet. 5
6. (a) What do you mean by traffic shaping ? Explain the Leaky bucket technique to shape the traffic. 5
- (b) Explain the conversion method of analog signal to digital signal. 5
7. (a) What is an E-mail? Discuss various mail delivery stages of an E-mail. 5
- (b) Compare and contrast between Open-loop congestion control and Closed-loop congestion control. 5
8. Write short notes on any **two** of the following : 5×2
- (a) Channelization
- (b) Circuit switching
- (c) Time Division Multiplexing
- (d) ALOHA.