Seat No. : _____

NK-111

November-2013

T.Y.B.C.A. Sem.-V

CC-303 – Data Communication & Networking

Time : 3 Hours] **[Max. Marks : 70**

Instruction : Draw diagrams wherever required.

1. (a) (1) Discuss ASK, PSK and FSK using suitable examples. **4**

(2) What are Standards ? Discuss the two categories of Data Communication Standards. **3**

OR

(1) Discuss PCM. **4**

(2) Explain giving examples simplex, half duplex and full duplex data transmission modes. **3**

(b) (1) Define the following : **4**

(a) Frequency
(b) Baud rate
(c) Bits per second
(d) Amplitude

(2) Differentiate Parallel and Serial Transmission. **3**

OR

(1) Discuss synchronous and asynchronous transmission. **4**

(2) What is Data Communications ? Discuss its three characteristics. **3**

2. (a) (1) Discuss Frequency Division Multiplexing (FDM) and FDM grouping. **4**

(2) Discuss the different categories of errors. **3**

OR

(1) Explain Time Division Multiplexing (TDM) and Statistical TDM. **4**

(2) Explain Vertical Redundancy Check (VRC) method of error detection using suitable example. **3**

(b) (1) Explain Sliding Window Protocol. **4**

(2) Explain CRC method of error detection. **3**

OR

(1) Discuss stop-and-wait and Go-back-n method of error detection. **4**

(2) Explain Longitudinal Redundancy Check (LRC) method of error detection. **3**

For the given data calculate the LRC :

Data1 = 11100100 Date2 = 11011101 Data3 = 00111001 Data4 = 00101001

3. (a) (1) Explain Twisted and Coaxial cable transmission media. **4**

(2) Discuss the various wireless frequency bands with examples of each. **3**

OR

(1) Explain Fiber optic transmission media with advantages and disadvantages. **4**

(2) Discuss Bus topology with its advantages and disadvantages. **3**

(b) (1) Discuss packet switching and its two approaches. **4**

(2) Discuss Cellular Communication. **3**

OR

(1) Discuss Star and Ring LAN topologies with advantages and disadvantages. **4**

(2) Discuss Circuit Switching. **3**

4. (a) (1) Explain the function of the following : **4**

(a) Bridge

(b) Router

(2) Discuss CSMA/CD. **3**

OR

(a) Discuss the functions of each layer of OSI model. **7**

(b) (1) Discuss TCP/IP. **4**

(2) Discuss Token Ring. **3**

OR

(1) Explain Fiber distributed data interchange (FDDI).

(2) Discuss ISDN.

5. (a) Fill in the blanks : **7**

(1) ANSI stands for _____.

(2) A set of rules that govern data communications between the sender and the receiver is called _____.

(3) Over long distances, _____ communication is used.

(4) In _____ error, multiple bits of a binary value are changed.

(5) _____ guided media has the highest data transmission rates.

(6) Message switching is also called _____ technique.

(7) ISDN stands for _____.

(b) State whether true or false : **7**

(1) The term modem is derived from a single component i.e. modulator.

(2) In parallel communication we transfer a word or a byte at a time.

(3) Only one satellite is sufficient to cover the earth's surface entirely.

(4) Wi-Fi is another name for 802.11 network.

(5) A packet does not contain any other information than the data.

(6) LED and LASER are two types of light sources.

(7) Ethernet is not a broadcast network.