Total No. of printed pages = 4

Et-602/DC&N/6th Sem/ETC/2017/M

DATA COMMUNICATION AND NETWORKING

Full Marks – 70

Pass Marks – 28

Time – Three hours

The figures in the margin indicate full marks for the questions.

Answer question No.1 and any *five* from the rest.

1. (A) Fill up the blank spaces : 5

(i) Walkie-talkie and CB radio are two good example of ..... .

(ii) ..... is used for asynchronous data transmission.

(iii) In RS-232 connector R stands for ..... and S stands for ..... .

(iv) B8ZS is a technique for line coding and it stands for ..... .

[Turn over

(B) State true or false against each statement. 5

(i) The OSI Reference model is a conceptual model.

(ii) The minimum range of frequencies a message signal contains is known as signal bandwidth.

(iii) Repeaters are smart (having full of software) but bridges are dumb terminals (without having software).

(iv) If the number of non-zero pulses after the last substitution is even in HDB3 line coding technique, the substitution patterm will be 'BooV.'

(v) USRT is used for synchronous data transmission between DTE and DCE.

2. Explain the functions of universal synchronous receiver / transmitter (UART). Explain the working principle of UART receiver with suitable diagram. 4+8=12

3. What is line coding ? Classify the different line coding technique and explain Manchester and HDB3 with suitable example. 1+2+9=12

4. Write the procedure in your own words how does sender machine send a message to receiver machine with the help of OSI Reference model. 12

5. Define the terms : Bit interval, Bit rate and Baud rate and also show the relation between Bit rate and Baud rate. For a binary PCM system, the number of bits per transmitted word is 8 and the sampling frequency f_s = 8 kHz, calculate the bit rate and baud rate. 12

6. How do MODEMs are classified ? Explain and write the roles of a MODEM. 6+6=12

7. Explain the different ISDN channels and what is narrow band ISDN, explain with suitable diagram. 6+6=12

8. What do you mean by network topology ? Explain the different topologies stating merits and demerits of each kind with suitable sketches. 12

9. Write short notes on any *two* : 6×2=12

(a) B-ISDN

(b) Various devices that are used in networking

(c) Frame format

(d) CSMA/CD protocol

(e) Structure of Internet.