

Total number of printed pages-3

53 (IT 302) DTCM

2019

DATA COMMUNICATION

Paper : IT 302

Full Marks : 100

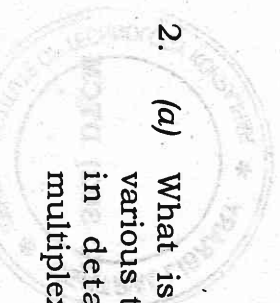
Time : Three hours

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

Answer **any five** questions.

1. (a) What is the difference among port address, logic address and physical address? 5
- (b) What are the responsibilities of the transport layer, network layer, data link layer and application layer? 10
- (c) Name the *four* basic network topologies and cite an advantage of each type. 5

Contd.



2. (a) What is multiplexing? What are the various types of multiplexing? Explain in detail. Differentiate between multiplexing and multiple access. 2+10+3=15
- (b) For a channel with 5KHz bandwidth and 150kbps data rate, what is the minimum SNR_{dB}? What is SNR? 5
3. (a) Encode the following bits using NRZ-L, NRZ-I, Manchester and Differential Manchester encoding. 10
0010101110101
- (b) Given the dataword 1010011010 and the divisor 10111. 10
- (i) Show the generation of the codeword at the sender site.
- (ii) Show the checking of the codeword at the receiver site.
4. (a) Explain ASK, FSK and PSK with neat diagram. 10
- (b) Explain CDMA with example. 10
5. (a) Differentiate among circuit switching, packet switching and message switching. 15

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- (b) What is noiseless channel? Find out maximum bit rate in noiseless channel with bandwidth of 3000Hz transmitting a signal with two signal levels. 5
6. (a) What is flow control? How data link layer performs flow control? 10
- (b) What is bit stuffing and byte stuffing? What is framing? 5
- (c) Two channels, one with bit rate of 150kbps and another with a bit rate of 400kbps, are to be multiplexed using pulse stuffing TDM with no synchronisation bits. 5
- (i) What is the size of the frame in bits?
- (ii) What is frame rate?
- (iii) What is data rate?
7. Write short notes on : 10×2=20
- (a) Transmission Impairments
- (b) Transmission Media.

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