

Roll No

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BT-4 / M-19

## DIGITAL DATA COMMUNICATION

Paper-CSE-206 N

Time allowed : 3 hours]

[Maximum marks : 75

*Note : Students will be required to attempt five questions in all, selecting one question from each unit. All questions carry equal marks.*

### Unit-I

1. Briefly explain the following:
  - (a) Spectrum of AM wave
  - (b) Vestigial side band modulation. 7+8=15
2. Write the spectrum of FM. Explain modulation index and bandwidth of FM signal. Compare NBFM Vs. WBFM. 15

### Unit-II

3. (a) What is meant by digital to digital conversion? Elaborate NRZ and RZ as types of polar encoding.  
(b) What are the various encoding scheme available analog encoding? Explain each of them in brief. 7+8=15
4. (a) How is delta modulation performed? Explain.  
(b) Write the need of modulation. Explain amplitude modulation. 7+8=15

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[Turn over.

### Unit-III

5. Explain parity code as error detection and hamming code as error detecting and correcting code. Determine the number of Hamming bits required for a 12-bit data string of 101100010010 and generate the hamming codeword. 15
6. (a) Why RS-449 interface is used? Explain electrical specification characteristics of RS-422A interface.  
(b) Draw a comparison among different transmission media. 7+8=15

### Unit-IV

7. What is multiplexing? Discuss bit stuffing and inverse multiplexing. Draw a comparison between synchronous and asynchronous TDM. 15
8. What is CDMA? How it is used for transmission and reception of data via satellite? Explain the principle of CDMA with suitable diagram. Differentiate CDMA with OFDMA. 15

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