

DR

Data Communication

E-193

2K5-DS-3

Roll No.: _____

Time : 3 Hrs.

M.M. 100

Note :

1. Part 'A' may be attempted in first 5 pages of Answer Sheet.
भाग 'क' के सभी उत्तर, उत्तर-पुस्तिका के प्रथम पांच पृष्ठों में ही करने हैं।
2. Part 'B' in rest of the Sheets of Answer Sheet.
भाग 'ख' के उत्तर, उत्तर-पुस्तिका के अगले शेष पृष्ठों में लिखिये।
3. Answers may be given in English or Hindi.
प्रश्नों के उत्तर अंग्रेजी अथवा हिन्दी में दीजिये।

Part 'A'

1. Attempt any 10 questions:

10x2= 20

- (i) Why analog-to-analog modulation technique is required?
- (ii) Between AM and FM, which one gives better noise immunity?
- (iii) Assuming there is no noise in a medium of $B = 4\text{KHz}$, determine channel capacity for the encoding level 4.
- (iv) Define S.N.R.
- (v) Why PSK is preferred as the modulation technique in modems?
- (vi) Why wires are twisted in case of twisted pair of transmission medium?
- (vii) Explain the terms multiplexing and demultiplexing.
- (viii) Define parity. What are its different types?
- (ix) Distinguish between Asynchronous and synchronous Transmissions.
- (x) What are the characteristics that define effectiveness of a data communication system?
- (xi) OTDR stands for _____.
- (xii) List the functions of MODEM.
- (xiii) Define line conditioners.
- (xiv) What do you mean by channel capacity?

2. Attempt any 5 questions:

5 x 4= 20

- (i) Why two separate frequencies are used for uplink and downlink transmission in case of satellite communication?

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- (ii) What are the three parameters that characterize the periodic signal?
- (iii) What is the need for modulation in communication systems?
- (iv) Define the terms 'bit rate' and 'band'. Give the relation between them.
- (v) Distinguish between 'serial' and 'parallel' transmission.
- (vi) List three advantages and disadvantages of Frequency Division Multiplexing.
- (vii) What do you mean by distortion? Explain in brief different kinds of distortion.
- (viii) Define analog, digital, periodic and non-periodic signals and sketch these signals.

PART-B**Attempt any 3 questions:****3 X 20 = 60**

- 3. (a) Explain Quadrature Amplitude Modulation (QAM) technique with a suitable diagram.
(b) Explain RS-232C interface standard in detail.
- 4. (a) Explain the different transmission impairments that affect data communications.
(b) Explain about the error detecting and error correcting codes.
- 5. (a) Explain the various transmission media for data communication.
(b) Explain the various kinds of test equipments that are used in data communication systems.
- 6. (a) Define noise. Explain the various kinds of noise and their effect on communication.
(b) Explain the various modes of transmission of binary data on telephone lines. In which case the channel bandwidth is utilized efficiently?
- 7. Write short note on any two:
 - (a) Centronics Interface
 - (b) Different modes of communication.
 - (c) IEEE-488