

**B.TECH SEM - V (2007 COURSE) (E & TC ENGG.) : WINTER -
2017**

SUBJECT: DIGITAL COMMUNICATION

Day: **Tuesday**
Date: **16/01/2018**

W-2017-2491

Time: **02.30 PM TO 05.30 PM**
Max. Marks: **80**

N.B.:

- 1) **Q.NO.1 and 5 are COMPULSORY.** Out of the remaining attempt any **TWO** questions form each Section.
- 2) Figures to the **RIGHT** indicate full marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer books.
- 4) Assume suitable data, if **NECESSARY**.

SECTION –I

- Q.1**
- a) What is flat top sampling? Explain with diagram and waveforms. **[05]**
 - b) What is quantization process? **[05]**
 - c) Why synchronization is needed in digital communication? **[04]**
- Q.2**
- a) Define the following terms: **[06]**
 - i) Ergodic Process
 - ii) Ensemble average.
 - iii) Stationary process.
 - b) State and prove sampling theorem in time domain. **[07]**
- Q.3**
- a) With the help of diagram explain working of delta modulator and demodulator. **[07]**
 - b) Write note on linear predictive coding (LPC). **[06]**
- Q.4**
- a) What is need of scrambling the data? Explain scrambling and descrambling process. **[07]**
 - b) Draw following line coding formats for bit stream 1010111010. **[06]**
 - i) Polar NRZ
 - ii) Bipolar RZ
 - iii) Split phase Manchester

SECTION –II

- Q.5**
- a) How PN sequences are generated. **[04]**
 - b) State various properties of matched filter. **[04]**
 - c) How BASK generated? Explain with diagram and waveforms. **[06]**
- Q.6**
- a) What is differential PSK(DPSK)? Explain DPSK system with diagram. **[08]**
 - b) What is frequency shift keying (FSK)? Explain with diagram and waveforms. **[05]**
- Q.7**
- a) Derive expression for probability of error in BFSK. **[06]**
 - b) What is integrate and dump filter? explain with circuit diagram and waveforms. Also state Signal to Noise Ratio (SNR). **[07]**
- Q.8**
- a) Explain DSSS system transmitter and receiver. **[07]**
 - b) Compare TDMA, FDMA and CDMA. **[06]**

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