

(Following Paper ID and Roll No. to be filled in your Answer Book)

Paper ID : 131755

Roll No.

B.Tech. [uptuonline.com](http://uptuonline.com)

(SEM. VII) THEORY EXAMINATION, 2015-16

TELEMETRY & DATA TRANSMISSION

[Time:3 hours]

[Total Marks:100]

Section-A

1. Attempt all parts. All parts carry equal marks. Write answer of each part in short. (10×2=20)
  - (a) Draw block diagram of the telemetry system identifying its components.
  - (b) List out the important components of data modems.
  - (c) What is Delta Modulation?
  - (d) What do you understand by redundancy bits in the code word and their purpose.
  - (e) What are major two effects of sampling on the spectrum of the analog signals.
  - (f) What is framing in telemetry.
  - (g) Explain, the steps involved in the block coding and

decoding.

- (h) A 8bit ADC works at 25 kHz clock rate and input voltage of -5 volt to +10 volts, obtain its conversion time and resolution.
- (i) Draw the functional block diagram of PLL identifying subsystems.
- (j) Draw any five line code data formats for binary sequence [1010110010].

Section-B

Attempt any five Questions from this section. (10×5=50)

2. Describe the sampling and reconstruction process. Also state and prove the Shannon's theorem and its importance.
3. Describe Quadrature Phase Shift Keying modulation and describe its advantages over PSK or ASK.
4. Describe the functionality of differential pulse code modulator and demodulator with the help of diagram.
5. Explain the concept of behind the error detection schemes. Briefly describe the various types of error correction methods.
6. Define convolution & its types and specific applications.

7. Describe the various components of data handling system with the help of diagram.
8. Enumerate the various serial interface standard and explain the electrical characteristics of RS-232 interface.
9. Describe the modem (V21) with the help of a functional block diagram.

### Section-C

Attempt **any two** questions from this section. (15x2=30)

10. Describe the space telemetry system briefly.
11. Enumerate the at least five applications area of communication based telecontrol system. Describe anyone of them with the help of diagram.
12. What multiplexing schemes are used in space telemetry system? Describe briefly, anyone of them.

—x—

[uptonline.com](http://uptonline.com)