

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

PAPER ID : 2720

Roll No.

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B.Tech.

(SEM. VII) THEORY EXAMINATION 2011–12

TELEMETRY AND DATA TRANSMISSION

Time : 3 Hours

Total Marks : 100

- Note :-** (1) Attempt **all** questions.
(2) All questions carry equal marks.

1. Attempt any **four** parts of the following : **(5×4=20)**
- (a) State and prove Shannon Theorem. What is sampling function ?
 - (b) Explain aliasing effect. How it can be removed ?
 - (c) Sketch a block diagram of differential pulse code modulation (DPCM) system and explain its operation.
 - (d) Explain why quadrature phase shift keying (QPSK) is adopted in digital data transmission system.
 - (e) Distinguish between Equalizing and Matched filter.
 - (f) Write short note on error correction codes. How are they used in data transmission system ?

2. Attempt any **four** parts of the following : **(5×4=20)**
- (a) Differentiate between Simplex, Half-duplex and Full-duplex Communication system.
 - (b) Explain low level and high level multiplexing techniques.
 - (c) What type of sensors is used in earth remote sensing ? Discuss in brief.
 - (d) Describe RS 232 interface and explain its electrical specification value for data transmission.
 - (e) Why Modems are needed for telephone communication ? Explain their working with example.
 - (f) Describe the working principle of Multiplier and data concentrator used for Telemetry purpose.
3. Attempt any **two** parts of the following : **(10×2=20)**
- (a) Draw and explain the circuit diagram of a bit synchronizer. Enlist the various types of synchronizer codes.
 - (b) Explain the phase locked loop (PLL) with the help of neat sketches.
 - (c) What types of display systems are used in Telemetry application ? Discuss two display systems at the receiver.
4. Attempt any **two** parts of the following : **(10×2=20)**
- (a) What specific units are to be there to form a remote control system ? How is it different from a telemetry system ? Explain the operation of generalized remote control system.

- (b) Discuss the general rules for installation of programmable controllers for factory automation.
 - (c) Write short notes on the following with suitable examples of industrial process :
 - (i) Tone command system
 - (ii) Data command system.
5. Attempt any **two** parts of the following : **(10×2=20)**
- (a) What type of signals are formed and how they are converted in a Aerospace telemetry ? Enumerate at least five applications of Aerospace telemetry system.
 - (b) Discuss the various multiplexing techniques used for digital signaling in telecontrol system.
 - (c) What is the purpose of industrial telecontrol ? Discuss the different parameters affecting the reliability in telecontrol installation ? Explain in brief.