



Printed Pages : 3

TIC707

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

PAPER ID : 0301

Roll No.

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B.Tech

(SEM VII) ODD SEMESTER THEORY EXAMINATION 2009-10
TELEMETRY OF DATA TRANSMISSION

Time : 3 Hours]

[Total Marks : 100

Note : Attempt all questions.

1 Attempt any four of the following : 5×4=20

- (a) State sampling theorem and prove the condition that a band pass signal can be received successfully at receiver.
- (b) Explain with block diagram Differential Pulse Code Modulation (DPCM).
- (c) Define ASK, FSK, PSK and draw the block diagram of QPSK receiver.
- (d) Define ARQ and FEC. Explain any two types of error correction codes.
- (e) Consider a (7,4) block code for which parity matrix is given as :

$$H \begin{bmatrix} 1 & 1 & 1 & 0 & 1 & 0 & 0 \\ 1 & 1 & 0 & 1 & 0 & 1 & 0 \\ 1 & 0 & 1 & 1 & 0 & 0 & 1 \end{bmatrix}$$

Find all the code words of the above code.

- (f) Draw a different line code data formats for binary sequence [1,0,11 01 00].



2 Attempt any **four** parts of the following : $5 \times 4 = 20$

- (a) Explain a Generalized Data Acquisition system.
- (b) Explain any two transducers used for telemetry application.
- (c) Describe serial interface with RS-232C.
- (d) Explain with block diagram. Dual slope integrator type A/D converter.
- (e) What is the function of data modem and explain modem functional block.
- (f) Explain D.C. signal condition system with suitable block diagram.

3 Attempt any **two** parts of the following : $10 \times 2 = 20$

- (a) Define remote control system. Explain automatic pipe lines for communication based processing control system.
- (b)
 - (i) Explain short notes on PLL.
 - (ii) Explain various input-output display system used for data handling system.
- (c) Explain asynchronous and synchronous data transmission. Draw a bit synchronizer functional diagram and PCM data format used for frame synchronizer.

4 Attempt any **two** parts of the following : $10 \times 2 = 20$

- (a) Define the various tone command usage in space craft. Explain with block diagram of tone based command system.

(b) Draw a typical architecture of programmable controller. What are the programmable controllers used for factory automation.

(c) Write short notes on the following :

- (i) Power system control.
- (ii) Multiplexing techniques in tele control.

5 Attempt any **two** parts of the following : $10 \times 2 = 20$

(a) Define Aerospace telemetry. Explain the basic principle of satellite system.

(b)

- (i) Explain TDM and T_1 frame channel synchronization in TDM.

- (ii) Draw the structural principle of a tele control installation.

(c) Write short notes on the following :

- (i) Reliability of tele control installations.
- (ii) Signal formation and conversion.