



Printed Pages : 3

TIC - 602

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

**PAPER ID : 3098**

Roll No.

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**B. Tech.**

(SEM. VI) EXAMINATION, 2007-08

**DATA ACQUISITION AND TELEMETRY**

Time : 3 Hours]

[Total Marks : 100

*Note : Attempt all questions.*1 Attempt any **four** parts of the following : **5×4=20**

- (a) What is telemetry and what are its basic components ? Explain them.
- (b) What is voltage telemetering system ? Explain basic voltage telemetering system used for measurement of water level.
- (c) Describe the frequency telemetering system giving a block diagram.
- (d) What is impulse telemetering system ? On what basis impulse telemetering systems are classified and name them.
- (e) Why is scope of hydraulic and pneumatic methods of data transmission limited ? Explain both in brief.
- (f) What is position telemetering system ? Explain with the help of neat sketches.



- 2 Attempt any **four** parts of the following : **5×4=20**
- (a) What are the advantages and disadvantages of delta modulation over PCM or DPCM ?
  - (b) Sketch and explain the functional diagram of a PCM system.
  - (c) Why TDM (Time Division Multiplexing) is required in a PCM system ? What are its advantages ?
  - (d) Compare the effects of with and without companding scheme in a PCM system.
  - (e) In an FM system, if  $M_f$  is doubled by halving the modulation frequency, what will be the effect on the maximum deviation ?
  - (f) Explain the phase locked local loop with the help of neat sketches.

- 3 Attempt any **two** parts of the following : **10×2=20**
- (a) What is meant by Modem ? Draw the pin diagram of Modem. What is null modem ? Show the connections and explain them.
  - (b) What type of topology is used when customers in an area use DSL modems for data transfer purposes ? Explain, when we have an overseas telephone conversation, we sometimes experience a delay. Can you explain the reason.
  - (c) Explain with the help of block diagram A DSL modem.

4 Attempt any **two** parts of the following : **10×2=20**

- (a) Why parabolic geometry is a suitable basis for antenna reflectors. Explain why an antenna using a paraboloid reflector is likely to be a highly directive receiving antenna.
- (b) Describe the behavior of loop antennas and show how they may be used for direction finding. What other applications do they have.
- (c) What are different transmission techniques used in telemetry system ? Describe interstage coupling.

5 Attempt any **two** parts of the following : **10×2=20**

- (a) List most commonly used filters. Draw the schematic diagram of the Band pass filter and explain.
  - (b) Design a wide band pass filter with  $f_L = 200\text{Hz}$ ,  $f_H = 1\text{ kHz}$  and a passband gain - 4.
  - (c) Explain what is fiber optic telemetry.
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