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TIC – 602

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

PAPER ID : 3098 Roll No. | | | | | | | | | | |

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 parabolid 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 telemetery 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 =200Hz, f_H = 1 kHz and a passband gain - 4.

(c) Explain what is fiber optic telemetry.