 aktuonline.com

* V - 3 0 9 8 *

Printed Pages : 3 **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, 2006-07

DATA ACQUISITION & 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? What transmission or storage systems can be used for telemetry?

b) What is current telemetry system? Describe motion and force balance current telemetering systems.

c) Name the various impulse telemetering systems and explain them in brief.

d) Distinguish between dc and ac telemetry systems. Enlist various methods adopted in an ac telemetry system.

e) Why is it necessary to protest transmission channel from sources of interferences in voltage telemetering system ? Explain them in brief.

f) Describe position telemetering bridge type system and position telemetering using symbols with circuit diagrams.

2 Attempt any **four** parts of the following : **5×4=20**

a) Compare EDM and TDM.

b) Compare PCM and DPCM

c) State the three Nyquist criteria for regeneration of modified PCM pulses at the regenerative repeaters.

d) Describe frequency and phase modulation, giving mechanical analogies for each.

e) Explain the effect of random noise on the output of an FM receiver fitted with an amplitude limiter. What is the concept of the noise triangle ?

f) What is the function of balanced modulator in the Armstrong modulation system ?

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

a) What is the difference, if any between the demodulor parts of a modem and the coder part of a codec?

How many frequencies does a full duplex, QAM – 64 modem use ?

Explain the full duplex QAM-64 modem.

b) Draw the pin diagram of a modem show its electrical, mechanical specifications and explain all in brief.

c) What is DSL technology, what are the services provided by the telephone companies using DSL? Distinguish between a DSL modem and a DSLAM.

 aktuonline.com

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

(a) What factors govern the relation of the feed point of a dipole antenna ? How do current feed and voltage feed differ ? What is an antenna array? What specific properties does it have that make-it so useful at HF ?

b) Describe the end file array and its radiation pattern, and explain how the pattern can be made unidirectional.

c) Sketch a helical antenna, and briefly explain its operation in the axial mode. In what very important way does this antenna differ from other antennas ?

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

a. What are the advantages and disadvantages of active filters over passive ones.

b. Design a first order low pass filter so that it has a cutoff frequency of 2kHz and a pass band gain of 1.

c. Design a narrow band pass filter so that $f_c = 2\ kHz$, $Q = 20$ and $A_F = 10$.

d. Draw the schematic diagram of the all pass filter and explain.

e. Explain the distribution of light in a single mode fiber.

f. How power is generated to a satellite ? Explain in brief.