

IV B.Tech I Semester Regular Examinations, November 2005
TELEMETRY AND TELECONTROL
(Electronics & Telematics)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. Write short notes on the following Telemetry system functions.
 - (a) Data processor
 - (b) Programming
 - (c) Magnetic Tapes
 - (d) Data Acquisition
 - (e) Analog to digital converters. [4+3+3+3+3]
2.
 - (a) Draw a block diagram and explain Electrical Telemetry System.
 - (b) Explain how electrical telemetry system is classified and write about the merits and demerits of the classified system. [8+8]
3. Describe the principle of
 - (a) Current to frequency converter in telemetry
 - (b) V-F converter in telemetry. [8+8]
4. Write short notes on
 - (a) Bandot code
 - (b) ASCII code
 - (c) Binary code
 - (d) Hollerith code. [4x4=16]
5. Explain the storage techniques of PWM data. [16]
6. Describe the construction and operation of He - Ne Laser. Discuss its advantages and disadvantages. [16]
7. List the advantages of amplitude modulated audio transmission and frequency modulated audio transmission. Explain with a neat sketch intermediate amplification of audio transmission channels on two wire links. [16]
8. Explain about the Tele control application in urban power supply net work, rural energy supply and power generation. [16]

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1. (a) Explain wired Telemetry system and give its limitations.
(b) Briefly explain Radio Telemetry system. [8+8]
2. (a) Explain the uses of optical Telemetry?
(b) Explain the operation of cross-coiled receiver in current Telemetry system. [6+10]
3. Draw the block diagram of a teletype channel based frequency telemetry system and explain the same. Explain the basic concept of receiver side of typical frequency telemetry system with neat sketches. [16]
4. Explain why is it essential to use Radio frequency (R.F) telemetry .Describe it with some relevant examples. [16]
5. What are the encoding techniques used in PCM telemetry system. Explain any one of them. [16]
6. Give the brief introduction about the following with the necessary figures.
 - (a) Optical fiber.
 - (b) Losses in optical fiber
 - (c) Pulse broadening. [6+5+5]
7. Draw neat sketch and explain how level is measured using a fiber optic sensor array multimode intensity modulated telemetry system. [16]
8. What is meant by remote regulation. Explain about remote regulation with examples. [16]

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1. (a) Explain how electrical Telemetry is classified and explain one system
(b) Explain Hydraulic Telemetry system. [8+8]
2. Describe the working operation of Telemetry system using the Kelvin balance as primary means of measurement. List the applications and demerits of the system. [16]
3. Draw the block diagram of frequency telemetry system and explain each block. What are the problems encountered with transmitting channel? [16]
4. Describe the salient features of A.M and F.M. telemetry and compare and contrast them. [16]
5. Explain with a neat sketch about the low-level PWM equipment which uses light beam in conjunction with galvanometer. [16]
6. How does energy loss occur in an optical fibre cable? What are the different types of such loss mechanisms? How can they be compensated? [16]
7. (a) Distinguish between Analog and digital Tele control methods with frequency modulation.
(b) Mention the merits and demerits of PCM system. [8+8]
8. (a) List out the signal apparatus used for Tele control installation.
(b) Explain about the recorders used for recording binary data and explain how individual messages are distinguished from one another by Acoustic means / signal output. [8+8]

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1. What is remote control? Explain the functional blocks of Tele control system, with simple signal conversion and double signal conversion installation. [16]
2. (a) Explain with a sketch how voltage is used to measure pressure in voltage Telemetry system.
(b) Draw the sketch of torque balance Telemetry system and explain with one example. [8+8]
3. Draw the block diagram of frequency telemetry system and explain each block. What are the problems encountered with transmitting channel? [16]
4. Describe the different methods used for pulse modulation in telemetry. [16]
5. Briefly explain about the sources of error in PWM Telemetry system. [16]
6. (a) Write in detail about IR detectors.
(b) What is an Avalanche Photodiode. Explain the construction details of the APD with a figure. [8+8]
7. Draw neat sketch and explain how level is measured using a fiber optic sensor array multimode intensity modulated telemetry system. [16]
8. (a) List out the signal apparatus used for Tele control installation.
(b) Explain about the recorders used for recording binary data and explain how individual messages are distinguished from one another by Acoustic means / signal output. [8+8]
