Sub Code: RIC702

Paper Id: 132725 Roll No: | | | | | | | | | | | | | |

BTECH
(SEM VII) THEORY EXAMINATION 2019-20
TELEMETRY PRINCIPLES

Time: 3 Hours ***Total Marks: 70***

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 7 = 14

a.	Write the time–domain equation of Frequency Modulation (FM).
b.	Draw the basic block diagram of PLL.
c.	What is the Ideal & practical bandwidth of FM System?
d.	What is Inter-symbol interference (ISI).
e.	Define Antenna.
f.	Discuss the advantages of Active Filter.
g.	Draw modulated waveforms PWM related to Telemetry.

SECTION B

2. Attempt any *three* of the following: 7 x 3 = 21

a.	Draw the block diagram of telemetry system. Explain its components.
b.	Explain TDM PCM System with block diagram & mathematical equation.
c.	Describe **modem protocol** in detail.
d.	What is Antenna Array? Describe some transmission techniques of Telemetry.
e.	Explain the basics of **Satellite** and **Fiber Optic Telemetry** in detail.

SECTION C

3. Attempt any *one* part of the following: 7 x 1 = 7

(a)	Explain **Non electrical telemetry systems** in detail.
(b)	Describe Voltage and current Telemetry systems. A 100W carrier is modulated to a depth of 80% for a single tone modulation

4. Attempt any *one* part of the following: 7 x 1 = 7

(a)	Write Four differences between FDM & TDM. Draw the block diagram of both Frequency Division Multiplexing (FDM) & Time Division Multiplexing (TDM).
(b)	What is Differential Pulse Code Modulation? Explain the working of Differential Pulse Code Modulation with transmitter & receiver block diagram.

5. Attempt any *one* part of the following: 7 x 1 = 7

(a)	Explain Modem with block diagram in detail.
(b)	Describe QAM with modulator & De-modulator used in Telemetry System.

6. Attempt any *one* part of the following: 7 x 1 = 7

(a)	Explain different **Microwave Antennas** in detail.
(b)	What are the different Receiver Antennas? Also provide information about Antenna arrays & current distribution.

7. Attempt any *one* part of the following: 7 x 1 = 7

(a)	Explain **Active RC Filters** & **Universal Filter Circuits** in detail.
(b)	Describe the Telemetry Data Acquisition Systems (DAS).