

GUJARAT TECHNOLOGICAL UNIVERSITY**B. E. - SEMESTER – VI • EXAMINATION – WINTER 2012****Subject code: 161704****Date: 05/01/2013****Subject Name: Analog Digital Communication****Time: 02.30 pm - 05.00 pm****Total Marks: 70****Instructions:**

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1 (a)** Explain the Data topologies **07**
(b) Explain the physical layer in detail **07**
- Q.2 (a)** Compute the CRC-4 character for the following message using a **07**
“divisor” constant of 10011:
1100 0110 1011 01
- (b)** (1) How does return to zero and non return to zero binary data forms **04**
differ?
(2) Explain Null Modem **OR** **03**
- (b)** An Frequency modulated signal with carrier frequency **07**
 $w_c = 2\pi \times 10^5$ is describe by the equation
 $10 \cos (w_c t + 5 \sin 3000t + 10 \sin 2000\pi t)$
Find:
(1) The power of the modulated signal
(2) The frequency deviation Δf
(3) The deviation ratio
(4) Estimate the bandwidth
- Q.3 (a)** Explain the FSK in detail **07**
(b) An AM broadcast station transmits 2KW if carrier power and uses an **07**
index of modulation of 0.7
Calculate:
(1) Power of each sideband
(2) Total sideband power
(3) Total Transmitter power
(4) Percentage of total power in the sidebands
OR
- Q.3 (a)** Explain the X.25 packet switch protocol **07**
(b) Explain SDLC/ HDLC protocol with their frame format and address **07**
and control field
- Q.4 (a)** Explain the losses in fiber cable **07**
(b) Explain the Delta modulation **07**
OR
- Q.4 (a)** Explain IEEE 802.11 : wireless lans using CSMA/CA **07**
(b) Explain Time Division Multiple Access in detail **07**
- Q.5 (a)** Explain the pre-emphasis & De-emphasis **07**
(b) Explain the 8PSK Modulator **07**
OR
- Q.5 (a)** Explain the synchronous data error methods **07**
(b) Explain with block diagram ACIA(Asynchronous Communications **07**
interface adapter). Also mention its control and status registers.
