

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) EXAMINATION – WINTER 2018****Subject Code:2162410****Date:30/11/2018****Subject Name:Industrial Communication System****Time: 02:30 PM TO 05:00 PM****Total Marks: 70****Instructions:**

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

- Q.1** (a) Explain following terms. **03**
(i) Modulation (ii) Channel Capacity (iii) Baud rate.
- (b) Explain Amplitude modulation in brief. **04**
- (c) Draw and explain block diagram of communication system. **07**
- Q.2** (a) Explain Phase modulation in brief. **03**
- (b) The total AM signal power is 48 Watts. Modulation index of AM is 45%. Calculate Carrier signal power and Sideband power. **04**
- (c) Explain Frequency modulation in detail. **07**
- OR**
- (c) Explain various communication modes in detail. **07**
- Q.3** (a) Differentiate balanced and unbalanced transmission lines. **03**
- (b) Explain ASK and FSK in brief. **04**
- (c) Explain the UART transmitter and receiver with the help of block diagram. **07**
- OR**
- Q.3** (a) An Amplifier has a BW of 4MHz with 10k Ω as the input resistor. Calculate the RMS noise voltage at the input to this amplifier if the room temperature is 25°C. **03**
- (b) Explain in brief Suppression Techniques. **04**
- (c) Explain PAM, PWM and PPM in detail. **07**
- Q.4** (a) Explain USB in brief. **03**
- (b) Explain network topologies in brief. **04**
- (c) Explain RS-232 interface standards. **07**
- OR**
- Q.4** (a) Explain GPIB in brief. **03**
- (b) Explain Wireless LAN using CSMA/CA in brief. **04**
- (c) Explain RS-422 and RS-485 interface standards in detail. **07**
- Q.5** (a) What is Protocol? list out various communication protocol. **03**
- (b) Explain various types of cables in brief. **04**
- (c) Explain TCP/IP protocol in detail. **07**
- OR**
- Q.5** (a) Explain advantages of optical fiber cable. **03**
- (b) Define followings terms. **04**
(i) Noise Figure (ii) Noise Temperature
- (c) List the benefits of FIELDBUS and DEVICE NET system. **07**
Describe three Network classes of FIELDBUS and DEVICE NET system.