

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER– VI (New) EXAMINATION – WINTER 2019****Subject Code: 2162410****Date: 11/12/2019****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 coaxial cables. **03**
(b) Write a technical note on: External Noise. **04**
(c) Explain Highway Addressable Remote Transducer (HART) protocol. **07**
- Q.2** (a) Explain power relation in the AM wave. **03**
(b) Explain mathematical representation of FM. **04**
(c) Compare ASK, FSK, PSK and PWM in tabular form. **07**
- OR**
- (c) Draw the block diagram of communication system and explain function of each block. **07**
- Q.3** (a) Explain unbalanced transmission. **03**
(b) Explain troubleshooting in serial data communication circuits. **04**
(c) Explain RS 232 interface standards. **07**
- OR**
- Q.3** (a) Explain the 20 mA current loop. **03**
(b) Explain the General Purpose Interface Bus (GPIB). **04**
(c) Explain RS 485 interface standard. **07**
- Q.4** (a) Draw and explain format of Modbus message frame. **03**
(b) Explain synchronization and memory notation of Modbus protocol. **04**
(c) Explain TCP/IP protocol. **07**
- OR**
- Q.4** (a) List benefits of fieldbus. Draw OSI model. **03**
(b) Explain Device net system. **04**
(c) List advantages of Fiber-optic cables. Explain theory of operation of Fiber-optic cables. **07**
- Q.5** (a) Explain transmission techniques. **03**
(b) Explain star topology and ring topology. **04**
(c) Explain the Universal Asynchronous Receiver/Transmitter (UART). **07**
- OR**
- Q.5** (a) Explain different communication modes. **03**
(b) Explain Asynchronous systems with message format. **04**
(c) Write a technical note on: Ethernet. **07**
