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Total Number of Pages: 01

**M.TECH**  
**EIPE202**

**2<sup>nd</sup> Semester Back Examination 2016-17**

**COMMUNICATION PROTOCOLS IN INSTRUMENTATION**

**Branch: APPLIED ELECTRONIC & INSTRUMENTATION ENGG, ELECTRONIC  
& INSTRUMENTATION ENGG**

**Time: 3 Hours**

**Max Marks: 70**

**Q.CODE:Z1167**

**Answer Question No.1 which is compulsory and any five from the rest.**

**The figures in the right hand margin indicate marks.**

- Q1 Answer the following questions: (2 x 10)**
- a) What are the criteria will affect efficient data communication system?
  - b) What are the main advantages of different connections in HTTP?
  - c) Differentiate among LAN, WAN, WPAN and WLAN.
  - d) What is a process-to-process delivery? Illustrate.
  - e) Discuss the pros and cons of an industry open network?
  - f) Why multicast support is required at the network (IP) layer?
  - g) Distinguish between a piconet and a scatternet.
  - h) What do you mean by a peer-to peer process?
  - i) Differentiate between factory automation and process automation?
  - j) What are Modbus and Modbus Plus?
- Q2 a) What are various modes of data flow directions? Discuss each one with suitable examples. (4)**
- b) How do the layers of OSI reference model correlate to that of the layers in internet model? (6)**
- Q3 a) Compare between Device networks, control networks and Enterprise networks? (6)**
- b) Discuss about the data highway plus. (4)**
- Q4 With the help of a neat sketch of MODBUS Transaction state diagram describes the generic processing of a MODBUS transaction in server side. (10)**
- Q5 a) What is a handshaking protocol and why are handshakes useful in protocols? (5)**
- b) What are the primary differences between RS-232, RS-422, and RS-485 serial interfaces? (5)**
- Q6 a) What is HART? How does it implement in the ISO Reference model? (5)**
- b) Illustrate and explain typical wiring connections between the HART Communicator and any compatible device. (5)**
- Q7 a) What do you mean by Fieldbus? Give the design issues of a Fieldbus and point out its advantages and disadvantages. (5)**
- b) What do you understand by Enterprise Networking? Elaborate. (5)**
- Q8 Write short notes on any two of the followings: (5 x 2)**
- a) MODBUS Protocol
  - b) Bluetooth and ZigBee
  - c) Components of a data communication system.
  - d) Fast Ethernet.