

[Time: Three Hours]

[Marks:80]

**Note:**

1. Question No.1 is compulsory
2. Solve any THREE questions out of remaining FIVE questions.
3. Figure to the right indicate full marks.

1. Answer the following :- (20)
 - a) Explain Manchester coding.
 - b) Compare H1 and HSE segment of foundation Field bus
 - c) What are the different types of network topologies.
 - d) Which standard is used for:
 - i) Wireless LAN
 - ii) GPRS
 - iii) Bluetooth
 - iv) ZigBee
 - e) What are the criteria to be considered to establish a good network?
2. Answer the following:-
 - a) Draw and explain the OSI reference model in detail. (10)
 - b) Explain the following network components and state in which layer of OSI model each of them work: (10)
 - i) Bridge
 - ii) Hub
 - iii) Router
 - iv) Gateway
 - v) Switch
3. Answer the following:-
 - a) What is MODBUS and MODBUS Plus? (10)
 - b) Describe PROFIBUS-DP in detail. (10)
4. Answer the following :-
 - a) Discuss the OPC architecture with suitable diagrams. (10)
 - b) Explain the method of implementing field bus in safe and hazardous area. (10)
5. Answer the following:-
 - a) Explain the architecture of HART. (10)
 - b) What is satellite communication? Define uplink and downlink frequency? (10)
6. Write short notes on (20)
 - a) GPIB
 - b) Data Highway Plus
 - c) CAN protocol
 - d) RS232,RS422
