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Question Paper Code : 21431

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2013.

Seventh Semester

Electronics and Instrumentation Engineering

EI 2401/EI 71/101333 EI 701 – INDUSTRIAL DATA NETWORKS

(Common to Instrumentation and Control Engineering)

(Regulation 2008)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is packet switching?
2. List the 3 main methods of accessing the communication media.
3. Define Bridge.
4. Write the different cabling used in Ethernet communication.
5. Define HART protocol.
6. Mention any 2 Fieldbus standards.
7. List the three types of Profibus.
8. Mention the benefits of Foundation Fieldbus over HART.
9. Expand the following: (a)PTT (b) RSSI.
10. What are the advantages of 'spread spectrum' radio modem?

PART B — (5 × 16 = 80 marks)

11. (a) (i) List and describe the seven layers of the OSI reference model. (10)
(ii) Mention the limitation that exist when the reduced OSI model is implemented. (6)

Or

- (b) (i) Describe HDLC protocol. (10)
(ii) Compare token bus and token. (6)
12. (a) (i) Describe the topology, cabling, Encoding scheme used in Ethernet communication. (12)
(ii) Define routers. (4)

Or

- (b) (i) Write short notes on (3+3)
(1) Bridges
(2) Gateways
(ii) Narrate the salient features of ARCNET. (10)

13. (a) (i) Explain the 3 network oriented classes of Fieldbus. (10)
(ii) Define:
(1) Interoperability (3)
(2) Inter Changeability (3)

Or

- (b) Describe the modes, message format command and instructions of HART communication protocol.
14. (a) (i) Describe briefly the Profibus communication model. (8)
(ii) How the error detection and diagnostics is performed in Foundation Fieldbus. (8)

Or

- (b) (i) Mention the basic properties of RS-485 voltage standard for Profibus. (8)
(ii) Explain the structure of MODBUS protocol. (8)

15. (a) (i) Enumerate the range of frequency bands of radio transmission and their applications. (8)
- (ii) Compare the features of thin and thick Ethernet. (8)

Or

- (b) (i) Explain the features of wireless LAN. (8)
- (ii) Draw the schematic of a radio modem. (8)
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