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Question Paper Code : 31431

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2013.

Seventh Semester

Electronics and Instrumentation Engineering

EI 2401/EI 71/10133 EI 701— INDUSTRIAL DATA NETWORKS

(Common to Instrumentation and Control Engineering)

(Regulation 2008/2010)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are major duties of application layer?
2. What is the hyper text transfer protocol?
3. Define the term router.
4. What is meant by socket address?
5. Explain briefly about the command "Write polling address".
6. Distinguish between interchangeability and interoperability.
7. Mention the PROFIBUS features.
8. Write the disadvantages of FIELDBUS compared to the ± 20 mA analog HART standard.
9. What is the baud rate of the standard 10-Mbps Ethernet?
10. Mention various wireless radio modem families.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Discuss in detail about the open system interconnection model of ISO with diagrams. (8)
- (ii) Explain the various features and characteristics of TCP/IP. (8)

Or

- (b) (i) Discuss the functions performed in the MAC sub layer in detail. (10)
- (ii) Write a detailed technical note on the token passing. (6)

12. (a) Discuss the standard ETHERNET wiring with neat diagrams. (16)

Or

(b) (i) Draw and explain ARCNET configurations in detail. (10)

(ii) Explain the various requirements for networks for control purposes. (6)

13. (a) (i) Discuss the general FIELDBUS architecture with diagrams. (10)

(ii) Write a detailed technical note on the OLE for process control applications. (6)

Or

(b) (i) Discuss the various HART commands and corresponding functionalities. (8)

(ii) Explain the applications enabled by wireless HART networks in automation. (8)

14. (a) Enumerate in detail, about the MODBUS protocol structure with diagrams. (16)

Or

(b) (i) Discuss the PROFIBUS communication model depicting the structure of virtual field device with object dictionary. (8)

(ii) Explain the characteristics of PROFIBUS PA troubleshooting approaches in detail. (8)

15. (a) (i) Discuss the various qualities of 100 Mbps Ethernet. (8)

(ii) Explain the components of radio link with diagrams. (8)

Or

(b) Enumerate the performance characteristics of radio spectrum and frequency allocation in detail. (16)