Question Paper Code : P 1361

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2009.

Seventh Semester

Electronics and Instrumentation Engineering

IC 1402 — COMPUTER NETWORKS AND DISTRIBUTED CONTROL SYSTEM

(Common to Instrumentation and Control Engineering)

(Regulation 2004)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.   Differentiate between character oriented and bit oriented protocols. Give an example for each.

2.   List the functions of data link layer.

3.   Define the function of bridges.

4.   What are the various configurations of Ethernet?

5.   State the need for distributed control.

6.   Bring out the differences and similarities between DCS and SCADA system.

7.   What are the various blocks of local control unit?

8.   Name any four engineering interfaces involved in DCS.

9.   Field bus is a replacement of 4 to 20 mA analog instrumentation. Justify the statement.

10. Define interoperability.

1265

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the different types of switching techniques. Compare their capabilities based on various issues. (10)

   (ii) What is data transparency? How is it achieved in BISYNC? (6)

Or

(b) Discuss the salient features of HLDC protocol and describe the different types of frames associated. (16)

12. (a) Draw a typical internetworking environment. Explain the various components involved, and their functions. (16)

Or

(b) (i) List out the special requirement for networks used for control applications. (6)

   (ii) Draw and explain the features of ARCNET. (10)

13. (a) (i) Write a note on the evolution of DCS. (6)

   (ii) Explain the client server model of DCS. (10)

Or

(b) (i) Describe the various architecture of DCS. (8)

   (ii) Enumerate on the issues associated with interfacing. (8)

14. (a) (i) Explain the requirements of operator interface within the DCS.

   (ii) Write a note on the various configurations of operator displays.

Or

(b) Elaborate on the low level and high level engineering interfaces of DCS with neat diagrams.

15. (a) Enumerate on the field bus standard specifications for low speed and high speed.

Or

(b) (i) Name and define the communication modes of HART protocol.

(ii) Explain the physical, data link and application layers of HART protocol and compare with OSI model.

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(10)

(6)

different
(16)

various
(16)

control
(6)

(10)

(6)

(10)

(8)

(8)

CS

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