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Question Paper Code : 33493

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

Seventh Semester

Instrumentation and Control Engineering

IC 1402 — COMPUTER NETWORKS AND DISTRIBUTED CONTROL SYSTEMS

(Common to Electronics and Instrumentation Engineering)

(Regulation 2004/2007)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are the different categories of networks?
2. What is meant by HDLC?
3. What is the function of routers?
4. What are gateways?
5. What are the applications of DCS?
6. What are the various types of interfacing techniques in DCS?
7. What is the significance of engineering interfaces?
8. What is meant by field bus?
9. How is the HART protocol linked with OSI model?
10. What are the salient features of HART protocol?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain Layers in OSI model. (8)
(ii) Explain star and bus topologies in computer networks. (8)

Or

- (b) (i) Explain in detail various layers of TCP/IP reference model. (8)
- (ii) Compare ISO and TCP/IP reference models. (8)
12. (a) Describe open system bridge and gateway configuration. (16)
- Or
- (b) Discuss on ETHERNET and ARCNET configuration. (16)
13. (a) Describe the architecture of DCS with a neat sketch and list the communication facilities in DCS. (16)
- Or
- (b) (i) Compare Distributed Control System over conventional control system. (8)
- (ii) Explain the functional requirements of DCS. (8)
14. (a) Discuss on low level and high level operator interfaces in DCS with suitable examples. (16)
- Or
- (b) Describe on low level and high level engineering interfaces in DCS with suitable examples. (16)
15. (a) (i) Compare HART and OSI model. (6)
- (ii) Explain the HART communication protocol and HART networks. (10)
- Or
- (b) (i) Draw and explain the field bus architecture in detail. (8)
- (ii) Discuss on various field bus topologies. (8)