

Reg. No.

Question Paper Code

11882

14 JUN 2023

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2023

Sixth Semester

Instrumentation and Control Engineering

20ICPC601 - INDUSTRIAL DATA NETWORKS

(Regulations 2020)

Duration: 3 Hours

Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

- | | <i>Marks,
K-Level, CO</i> |
|--|-------------------------------|
| 1. Define point-to-point line configuration. | 2,K1,CO1 |
| 2. Differentiate between Token Bus and Token Ring. | 2,K2,CO1 |
| 3. List the function of repeaters. | 2,K1,CO2 |
| 4. Distinguish between adaptive and non-adaptive routing. | 2,K2,CO2 |
| 5. Define Interchange ability. | 2,K1,CO3 |
| 6. Differentiate between HART and field bus. | 2,K2,CO3 |
| 7. Mention the advantages of Foundation Field Bus. | 2,K1,CO4 |
| 8. Show the MODBUS message frame format with size of each field. | 2,K2,CO4 |
| 9. Mention the advantages of 'spread spectrum' radio modem. | 2,K1,CO5 |
| 10. Define baud rate. | 2,K1,CO5 |

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

- | | |
|--|-----------|
| 11. a) Explain about OSI model with neat diagram. | 13,K2,CO1 |
| OR | |
| b) With neat sketch explain the concept of CSMA/CD. | 13,K2,CO1 |
| 12. a) Explain bridges and gateways in detail. | 13,K2,CO2 |
| OR | |
| b) Describe about the half duplex communication used in RS 232. | 13,K2,CO2 |
| 13. a) With neat sketch explain the general FIELDBUS architecture. | 13,K2,CO3 |
| OR | |
| b) Classify the various HART commands and functionalities and explain any two in detail. | 13,K2,CO3 |
| 14. a) List different types of layers in PROFIBUS and explain each in detail. | 13,K2,CO4 |
| OR | |
| b) Describe about Common MODBUS function code and Read coil code. | 13,K2,CO4 |

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create

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15. a) Explain the components of radio links in detail. 13,K2,CO5
OR
b) Discuss about the ISA standards in detail. 13,K2,CO5

PART - C (1 × 15 = 15 Marks)

16. a) (i) Explain the communication model and profile of PROFIBUS. 8,K2,CO4
(ii) Describe 100 Mbps Ethernet with its specifications in brief. 7,K2,CO5

OR

- b) (i) Describe error detection and troubleshooting in PROFIBUS. 7,K2,CO4
(ii) Write short notes on 10BASE-T and explain the feature of thin and thick Ethernet. 8,K2,CO5