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Question Paper Code	12781
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B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2024

Sixth Semester

Electrical and Electronics Engineering

20EEEL608 - INDUSTRIAL DATA COMMUNICATIONS

Regulations - 2020

Duration: 3 Hours

Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

	Marks	K- Level	CO
1. Define channels, data and bits.	2	K1	CO1
2. List out the error detection methods.	2	K1	CO1
3. List out the serial standards.	2	K1	CO2
4. Define the term “Interoperability”.	2	K1	CO2
5. Compare networking software with OSI model.	2	K2	CO3
6. Write any three requirements of field buses.	2	K1	CO3
7. Write wide area communication, and how does it differ from local area communication?	2	K1	CO4
8. List out the limitations of using wireless SCADA in industrial applications.	2	K1	CO4
9. List out the key hardware components of a wireless sensor network.	2	K1	CO5
10. Compare wireless HART and Traditional HART communication.	2	K2	CO5

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11. a) With neat diagram, explain in detail the serial and parallel transmission of data communication.	13	K2	CO1
OR			
b) Explain each layer of OSI model.	13	K2	CO1
12. a) Explain in detail about the TAA/EIA 232 serial communication.	13	K2	CO2
OR			
b) Explain on detail about Repeater, Hub, Bridge, and router of LAN infrastructure.	13	K2	CO2
13. a) Explain the PLC architecture with neat diagram.	13	K2	CO3
OR			
b) With diagram explain HART and its concepts.	13	K2	CO3

14. a) Illustrate wide area communication ensure reliable communication over long distances and in remote areas. 13 K2 CO4

OR

b) Illustrate SCADA used in real-time monitoring of the power generation process. 13 K2 CO4

15. a) List the key hardware components of a wireless sensor network, and how do they work together to provide wireless connectivity to sensors and other devices. 13 K2 CO5

OR

b) Explain in detail about Zigbee module communication reliability and packet loss in noisy environments. 13 K2 CO5

PART - C (1 × 15 = 15 Marks)

16. a) Explain the working concepts of foundation field buses with example. 15 K2 CO3

OR

b) Explain in detail the network softwares and operating systems used in data communications. 15 K2 CO3