Reg. No. : | | | | | | | | | | |

Question Paper Code: 49052

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2017

Sixth Semester

Electronics and Instrumentation Engineering

14UEI 914 – INDUSTRIAL DATA NETWORKS

(Regulation 2014)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Physical or logical arrangement of network is

   (a) Token (b) Topology (c) Routing (d) Networking

2. Which address identifies a process on a host?

   (a) Physical Address (b) Logical Address (c) Port Address (d) Specific Address

3. What is the max cable length of STP?

   (a) 0.5 (b) 0.25 (c) 0.75 (d) 1

4. Bridge must therefore discard any frames too large for its

   (a) Data (b) 2 Connection (c) Bridge (d) System

5. The maximum number of devices to be connected in HART multidrop communication

   (a) 8 (b) 15 (c) 20 (d) 16

6. SDLC at the data link layer permits 250 nodes on one segment with a total distance of

   (a) 13.2 km (b) 11.2 km (c) 12.2 km (d) 14.2 km

7. The size provided by a Modbus slave device to a Modbus master device for input register

   (a) 16 bits (b) 8 bits (c) 32 bits (d) 64 bits

8. Modbus is restricted to addressing _____ devices on one data link

   (a) 254 (b) 255 (c) 252 (d) 253

9. MAC address is of

(a) 24 bits (b) 36 bits (c) 42 bits (d) 48 bits

10. An Ethernet frame that is less than the IEEE 802.3 minimum length of 64 octets is called

(a) Short frame (b) Mini frame (c) Main frame (d) Run frame

PART - B (5 x 2 = 10 Marks)

11. List the different categories of network.

12. Distinguish between adaptive and non-adaptive routing

13. Classify the types of Fieldbus standards.

14. Show the MODBUS message frame format with size of each field.

15. Evaluate the baud rate of the standard 10-Mbps Ethernet.

PART - C (5 x 16 = 80 Marks)

16. (a) Sketch the network hierarchy and explain about communicating devices in detail (16)

Or

(b) (i) Explain the functions performed by every layer of ISO/OSI in detail with example. (8)

(ii)Distinguish between TCP/IP model with ISO/OSI model. (8)

17. (a) (i) Discuss about the ARC net configuration with neat diagram. (12)

(ii) Specify the significances of routers in an internet connection. (4)

Or

(b) (i)Describe in detail about the Ethernet standards for networks. (10)

(ii) Illustrate the issues involved loop problem in the design of bridges. (6)

18. (a) Write about communication services exist in FIELDBUS message specification and explain it. (16)

Or

(b) (i) Analyze the function of physical layer present in HART protocol. Mass flow rate of the gas. (8)

(ii) Describe the application of HART in Valve Diagnostics in detail. (8)

19. (a) (i) With neat sketch explain the structure of MODBUS protocol. (10)

(ii) Summarize the special features existing in MODBUS protocol. (6)

Or

(b) With neat sketch explain the architecture of PROFIBUS protocol stack. (16)

20. (a) (i) Differentiate between the IEEE 802.3 and Ethernet V2. (8)

(ii) Explain in detail about the signal to noise ratio and SINAD. (8)

Or

(b) (i) Draw the schematic of radio modem configuration and describe them in detail. (8)

(ii) Compare 10 Mbps Ethernet and 100 Mbps Ethernet in detail. (8)

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