22336

11920

3 Hours / 70 Marks Seat No. | | | | | | | | |

Instructions : (1) All Questions are *compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Use of Non-programmable Electronic Pocket Calculator is permissible.

(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE : **5 × 2 = 10**

(a) Define Noise. Name the sources of noise.

(b) Name any four digital to analog modulation techniques.

(c) Give the classification of network based on geographical area.

(d) Name two optical source and two optical detectors.

(e) State two specifications of IEEE 802.3.

(f) State the advantages of client server model.

(g) State two features of Devicenet.

2. Attempt any THREE : **3 × 4 = 12**

(a) State the need for modulation.

(b) Define Multiplexing. State the need for multiplexing.

(c) Define Bandwidth with reference to analog system and digital systems. State the unit in the two systems.

(d) Draw a sketch of the layered architecture of TCP/IP model. State the function of each layer.

3. Attempt any THREE : **3 × 4 = 12**

(a) Encode the data sequence 1110101101 using unipolar NRZ, unipolar RZ, polar NRZ and polar RZ encoding schemes.

(b) State the function of Hubs, repeater, router and gateway.

(c) Compare LAN and WAN on the basis of

(i) Area covered (ii) Bandwidth

(iii) Data rate (iv) Congestion

(d) Draw the sketch of Bus topology and explain. State one advantage and one disadvantage.

4. Attempt any THREE : **3 × 4 = 12**

(a) Explain Acceptance angle and Numerical aperture in a fibre optic cable.

(b) Describe Profibus protocol. State the function of various layers.

(c) Draw the 9 pin configuration of RS232 standard. State the function of the pins.

(d) State the features of HART networks.

(e) State the application of each of the following connectors.

(i) RJ – 45 (ii) BNC – T

(iii) MT – RJ (iv) ST

5. Attempt any TWO : 2 × 6 = 12

(a) Draw ASK, FSK and BPSK waveforms for the data sequence 10110010.

(b) Draw the layered architecture of the OSI reference model and state the function of Physical and Transport layer.

(c) With a neat sketch, explain the working of P-i-N-Photo diode. Compare P-i-N photo diode and Avalanche photo diode.

6. Attempt any TWO : 2 × 6 = 12

(a) Draw the basic block diagram of communication system. State the fucntion of each block.

(b) Develop the Devicenet network for 6 nodes.

(c) Describe with sketch foundation field bus protocol architecture.

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