22336

23124

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

Marks

1. Attempt any FIVE of the following : **5 × 2 = 10**

(a) Give any two examples of Simplex & Full duplex communication modes. **2**

(b) Sketch ASK waveform for data stream 10110101. **2**

(c) List layers of TCP/IP model with diagram. **2**

(d) List optical transmitter and optical receiver (any two each). **2**

(e) Write any four features of Devicenet network. **2**

(f) Classify networks on the basis of transmission technology and architecture. **2**

(g) Write any four specifications of MODBUS. **2**

2. Attempt any THREE of the following : **3 × 4 = 12**

(a) Describe factors affecting on signal propagation. **4**

(b) Draw waveforms for pulse width modulation with suitable example. **4**

(c) Describe working principle of TDM with neat diagram. **4**

(d) Explain Virtual Private Networks from security and access to regional content point of view. **4**

3. Attempt any THREE of the following : 3 × 4 = 12

(a) Differentiate between BPSK and QPSK modulation techniques. **4**

(b) Explain construction of co-axial cable with diagram. **4**

(c) Analyze the advantages of client server model over peer to peer. **4**

(d) Compare between Mesh and Ring topology used in networking. **4**

4. Attempt any THREE of the following : 3 × 4 = 12

(a) Explain the concept of total internal reflection and critical angle in optical fibre cable with diagram. **4**

(b) Explain serial communication using RS485 bus. **4**

(c) With layered architecture, explain the function of each layer in Foundation Field Bus. **4**

(d) Suggest the data transmission protocol which uses collision detection. Explain its effectiveness. **4**

(e) Explain in brief the roles of Hub, Repeater, Router and Gateway as connecting devices in network. **4**

5. Attempt any TWO of the following : 2 × 6 = 12

(a) Encode the bit sequence 11001100 using unipolar RZ, unipolar NRZ, polar RZ, polar NRZ, differential Manchester and AMI scheme. **6**

(b) Explain the function of each layer of OSI reference model with layered architecture. **6**

(c) Identify the cables used with following connectors and write any one application for cables : **6**

(i) RJ-45

(ii) MTRJ

(iii) RJ-11

(iv) BNC

(v) SC

(vi) ST

6. Attempt any TWO of the following : 2 × 6 = 12

(a) For data 10101010, describe serial and parallel transmission with neat sketch. **6**

(b) Describe step by step procedure to install/configure HART point to point protocol. **6**

(c) Describe Profibus protocol architecture with layered diagram. **6**
