22336

11819

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

I. Attempt **any five** of the following : **(5×2=10)**

a) Define the terms :
   i) Signal to noise ratio
   ii) Bit rate.

b) State the need for multiplexing.

c) Classify computer networks based on transmission technologies.

d) State the function of hub and repeater.

e) State two specifications of MODBUS.

f) State two advantages of client.

g) Draw the 9 pinout of RS 232 Communication.

II. Answer **any three** of the following : **(3×4=12)**

a) State the need for modulation.

b) With the help of waveforms, explain the working of amplitude shift keying.

c) Explain the principle of working of FDM.

d) The diagram given below fig. 1 illustrates a simple network architecture. It represents a layered model of a communication system used for transferring of files between computers over a network.

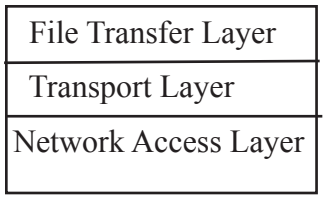

Fig. 1

P.T.O.

Marks

i) State the major function of Network Access Layer.

ii) State the tasks performed by transport layer.

III. Attempt **any three** of the following : **(3×4=12)**

a) Encode the data stream 1011001010 using unipolar RZ and Polar RZ encoding techniques.

b) Describe the construction of a fiber optic cable with labelled sketch.

c) Draw the seven layered architecture of OSI reference model. State the functions of network layer and session layer.

d) Compare WAN and LAN on the basis of

i) Area covered

ii) Propagation delay

iii) Speed

iv) Congestion.

IV. Attempt **any three** of the following : **(3×4=12)**

a) With a sketch, describe the working of p-i-n photo diode.

b) Describe with sketch profibus protocol architecture.

c) State the functions of the pins in RS 232 communication interface standard.

d) Describe with broad specifications the software and hardware requirement to set up HART system.

e) State one application and one limitation of the following types of transmission media.

i) Coaxial cable

ii) Optical fibre

iii) Twisted pair lines

iv) Wireless media.

Marks

V. Attempt **any two** of the following : **(2×6=12)**

a) i) State the bandwidth requirement for the following :

i) ASK

ii) FSK

iii) BPSK

iv) QPSK.

ii) Define Bandwidth with reference to analog signal and digital signal.

b) With a sketch, describe star topology. State one advantage, one disadvantage and one application.

c) Explain the different modes of propagation of light in fibre optic cable.

VI. Attempt **any two** of the following : **(2×6=12)**

a) Describe serial and Parallel transmission of data with sketch for transmitting a data 0101. State the limitations of each transmission system.

b) Develop a Devicenet network for 8 nodes.

c) Describe step-by step procedure to Install/configure HART point-to point communication network.