Scheme – I
Sample Test Paper - I

Program Name : **Electronics Engineering Group**

Program Code : **DE/ EJ/ET/EX/EQ**

22634

Semester : **SIXTH**

Course Title : **Computer Networking and Data Communication**

Marks : **20** **Time:1 Hour**

Instructions:

(1) All questions are compulsory.
(2) Illustrate your answers with neat sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Assume suitable data if necessary.
(5) Preferably, write the answers in sequential order.

Q.1 Attempt any FOUR. **(08 Marks)**

a) Draw block diagram of data communication
b) State two advantages of computer networks.
c) List functions of Transport layer of ISO-OSI Network Model.
d) State the need for multiplexing.
e) Draw labeled construction of fiber optic cable.

Q.2 Attempt any THREE. **(12 Marks)**

a) Suggest network topologies for the following applications with proper justification of parameters considered:
   i) E-library having 10 computers.
   ii) Administrative office with five computers.

b) Describe the four levels of addresses used in TCP/IP protocol

c) Compare FDM and TDM on the basis of
   i) Bandwidth utillization
   ii) Channel capacity
   iii) Error control
   iv) Transmission delay

d) Enlist protocols with one application for following layers:
   i) Physical Layer
   ii) Transport Layer.

Scheme – I
Sample Test Paper - II

Program Name : **Electronics Engineering Group**

Program Code : **DE/ EJ/ET/EX/EQ**

22634

Semester : **SIXTH**

Course Title : **Computer Networking and Data Communication**

Marks : **20** **Time:1 Hour**

Instructions:

All questions are compulsory.

(1) Illustrate your answers with neat sketches wherever necessary.
(2) Figures to the right indicate full marks.
(3) Assume suitable data if necessary.
(4) Preferably, write the answers in sequential order.

Q.1 Attempt any FOUR. **(08 Marks)**

(a) List two Unguided Transmission Media.
(b) Define Error control and Flow control.
(c) State functions performed by Gateway and Repeater.
(d) Give the names of the layer where the following protocols are related to:
i) UDP ii) FTP
(e) Explain role ofNAT in network layer.

Q.2 Attempt any THREE. **(12Marks)**

(a) Compare circuit switching and packet switching on the basis of
i) Transmission Path ii)Routing iii) Information type iv) Applications.
(b) Explain the process of single bit error detection.with suitable example
(c) Explain the frame format of Point to Point Protocol
(d) Define Cryptography .Explain the components of Cryptography.

Scheme – I
Sample Question Paper

Program Name :**Electronics Engineering Group**

Program Code : **DE/ EJ/ET/EX/EQ**

22634

Semester :**SIXITH**

Course Title : **Computer Networking and Data Communication**

Marks :**70** **Time:3Hours.**

Instructions:

(1) All questions are compulsory.
(2) Illustrate your answers with neat sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Assume suitable data if necessary.
(5) Preferably, write the answers in sequential order.

Q.1) Attempt any FIVE of the following: - **(10 Marks)**

(a) Draw labeled frame format of Serial and Parallel data transmission method.
(b) Classify networks on the basis of architecture.
(c) State two functions of the data link layer of TCP/IP reference model.
(d) Name the layer of the OSI model at which the mechanical, electrical, functional and procedural characteristics are defined. State its function.
(e) State two limitations of twisted pair cable.
(f) List four network connecting devices.
(g) State two basic functions of Firewall.

Q.2) Attempt any THREE of the following: - **(12 Marks)**

(a) Draw the block diagram of data communication system and state the function of each block.
(b) Compare LAN and WAN on the basis of following parameters.
i) Geographical area ii) Speed iii) Installation Cost iv) Communication medium
(c) The following diagram illustrates simple network architecture. It describes a layered model of a communication system used for transferring files between computers over a network

File Transfer Protocol
Transport Layer
Network Access layer

i) State the tasks performed by the transport layer
ii) State the function of Network access layer

(d) In a particular data transmission system, the data received was 1 0 1 1 0 1 0. Using 7 bit odd parity hamming code, determine the correct code

Q.3) Attempt any THREE of the following. (12 Marks)

(a) State the names of the layers that perform the following functions:
i) Data Encryption ii) Error correction iii) Filetransfer iv) Data Encoding

(b) Calculate CRC for the frame 110101011 and the generator polynomial is x4+x+1.Generate the codeword for the transmitted frame

(c) Draw a diagram to establish a network for a computer laboratory with 5 computers having internet facility using the following devices
i) Switch ii) Router

(d) Compare IPv4 and IPv6 on the basis of
i) Address length ii) Packet size iii) Configuration iv) IPSecurity

Q.4) Attempt any THREE of the following. (12 Marks)

(a) Compare transmission medium on the basis of
i) Bandwidth ii) Attenuation iii) Ease of Installation iv) Electromagnetic interference

(b) Describe a One bit sliding window protocol under normal condition and with damaged frame with suitable diagram.

(c) Describe the different modes of light propagation in a fibre optic cable with diagram.

(d) On which layer do the following devices work:.
i) Hub ii) Switch iii) Router iv) Repeater

(e) Explain principle of Frequency Division Multiplexing with block diagram .

Q.5) Attempt any TWO of the following. (12 Marks)

(a) With a suitable diagram, describe the following topologies.
i) Star topology ii) Mesh topology

(b) Draw the 7 layered architecture of the OSI model. State the function of various layers

(c) Classify modems. State two features of each type of modem.

Q.6) Attempt any TWO of the following. (12 Marks)

(a) Draw and describe architecture for network using tree topology for an office in 3-storey building

(b) Describe transition phase of PPP.

(c) Draw the block diagram of Asymmetric Key Cryptography and state the function of various components.