

**Scheme – I**  
**Sample Test Paper - I**

**Program Name** : Electronics Engineering Group  
**Program Code** : DE/ EJ/ET/EX/EQ  
**Semester** : SIXTH  
**Course Title** : Computer Networking and Data Communication  
**Marks** : 20

22634

**Time:1 Hour**

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**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 utilization
  - 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  
**Semester** : SIXTH  
**Course Title** : Computer Networking and Data Communication  
**Marks** : 20

22634

**Time:1 Hour**

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**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 of NAT 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  
**Semester** :SIXTH  
**Course Title** : Computer Networking and Data Communication  
**Marks** :70

**22634**

**Time:3Hours.**

**Instructions:**

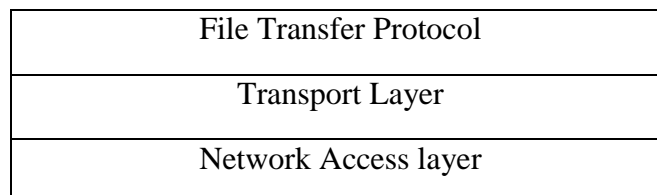
- (1) All questions are compulsory.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data if necessary.
- (5) Preferably, write the answers in sequential order.

**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



- 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  $x^4+x+1$ . 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.