

This question paper contains 4 printed pages]

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S. No. of Question Paper : 8352

Unique Paper Code : 234561

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Name of the Paper : CSPT 505 : Computer Networks

Name of the Course : B.Sc. Physical Science with Computer Science Part III

Semester : V

Duration : 3 Hours

Maximum Marks : 75

(Write your Roll No. on the top immediately on receipt of this question paper.)

Question No 1 is compulsory.

Attempt any *Five* from remaining seven questions.

In all *six* questions are to be attempted.

Marks are indicated against each question.

All parts of a question must be done together.

1. Attempt all parts :

- (i) List any *two* advantages of a multipoint connection over a point-to-point connection. (2)
- (ii) Consider *two* computers connected by an Ethernet hub at home. Will it be classified as a LAN, a MAN, or a WAN ? Give reasons. (2)
- (iii) Identify one or more layers of the OSI model for the following functions :
  - (a) Route determination
  - (b) Flow control
  - (c) Interface to transmission media
  - (d) Providing access for the end user. (2)

P.T.O.

- (iv) What is the significance of the twisting in twisted-pair cable ? (1)
  - (v) Explain how can we physically extend the length of a LAN ? (2)
  - (vi) Show how the following data 0001111111001111101000 would change when bit stuffing is applied on it. (2)
  - (vii) Name the events that can occur at the sender site in Stop and Wait protocol. (2)
  - (viii) Interpret the following flag values in a dynamic routing table:- "D", "G" (2)
  - (ix) Which is a preferred name space: - hierarchical or a flat name space for a system of the size of the Internet ? Give reasons. (2)
  - (x) Identify the number of labels and the levels of hierarchy in the DNS domain name in "my.computerinst.edu." (2)
  - (xi) Withdrawal of money from an ATM machine involves message authentication or entity authentication, or both ? Explain. (2)
  - (xii) What is a browser ? Name the different components of a browser. (4)
2. (a) Identify the *four* basic network topologies, and list an advantage of each type. (4)
- (b) Explain in brief any *two* responsibilities each of the data link layer and the network layer in the Internet model. (4)
- (c) Compare and contrast (at least *two* points) fiber optic cable with metallic cable as a transmission media. (2)
- 3 (a) What does "unguided media" communication imply ? Explain in brief the different techniques of transmission of unguided signals. (5)

- (b) Identify the different persistence methods that can be adopted when a station finds a channel busy. Explain the p-persistence approach in detail. What are the advantages of using this approach ? (5)
4. (a) Define a virtual circuit network. List the major characteristics of such a network. Identify the different ways of addressing used in such a network. (5)
- (b) An organization is granted the block 211.17.180.0/24. The administrator wants to create 32 subnets. (5)
- (i) Find the subnet mask.
- (ii) Find the number of addresses in each subnet.
- (iii) Find the first and last addresses in subnet 1.
5. (a) What is classless addressing ? List the restrictions imposed by the internet authorities on classless address blocks. (4)
- (b) Categorize the following as FQDN (Fully Qualified domain name) or PQDN (Partially Qualified domain name). (2)
- (i) abc
- (ii) abc.xyz.
- (iii) abc.xyz.net
- (iv) abc.xyz.pqr.edu.
- (c) Name and explain in brief the different FTP transmission modes. (4)

6. (a) Show a request that asks for information about a document at `/bin/users/file`. Use at least *two* general headers and *one* request header. Also show the response to a successful request for this. (5)
- (b) Define firewall. Explain the functioning of proxy firewall. (5)
7. Differentiate between the following (any *five*) : (5×2 = 10)
- (a) Passive hub and active hub;
  - (b) Forward error correction and correction by retransmission;
  - (c) Primary server and secondary server;
  - (d) Recursive resolution and iterative resolution;
  - (e) Local and remote log-in in TELNET;
  - (f) Active document and dynamic document;
  - (g) Intranet and extranet.
8. Write notes on any *two* of the following : (2×5=10)
- (a) SMTP
  - (b) TELNET
  - (c) Virtual Private Network
  - (d) CSMA/CD
  - (e) Datagram Networks