

(4)

(d) Assume six devices are arranged in a mesh topology. How many cables are needed? How many ports are needed for each device?

(e) Define bandwidth and latency.

4. Answer the following questions (any three) :
10×3=30

(a) Discuss the functions of data link layer in a computer network.

(b) Identify the layers in OSI reference model and illustrate their functions.

(c) Discuss about the techniques to improve QoS in Internetworking.

(d) Discuss about the design issues of computer networks.

(e) Describe CSMA/CD protocol in Ethernet.

2022

INFORMATION TECHNOLOGY

Paper : INT-VE-5016

(Computer Network)

Full Marks : 60

Time : 3 hours

The figures in the margin indicate full marks for the questions

1. Choose the correct option of the following :
1×7=7

(a) The IETF standard documents are called

(i) RFC

(ii) RCF

(iii) ID

(iv) DFC

(b) In the layer hierarchy as the data packet moves from the upper to the lower layers, headers are

(i) added

(ii) removed

(iii) rearranged

(iv) modified

(2)

- (c) The structure or format of data is called
- (i) syntax
 - (ii) semantics
 - (iii) struct
 - (iv) formatting
- (d) The network layer is concerned with _____ of data.
- (i) bits
 - (ii) frames
 - (iii) packets
 - (iv) bytes
- (e) Which one of the following is not a function of network layer?
- (i) Routing
 - (ii) Inter-networking
 - (iii) Congestion control
 - (iv) Error control
- (f) In virtual circuit network, each packet contains
- (i) full source and destination address
 - (ii) a short VC number
 - (iii) only source address
 - (iv) only destination address

(3)

- (g) Bluetooth is an example of
- (i) personal area network
 - (ii) local area network
 - (iii) virtual private network
 - (iv) wide area network
2. Answer the following questions : 2×4=8
- (a) Discuss the use of computer networks.
 - (b) A network on the Internet has a subnet mask of 255.255.240.0. What is the maximum number of hosts it can handle?
 - (c) How are errors caused in transmission lines?
 - (d) What is transport address? Who will assign it?
3. Answer the following questions (any three) : 5×3=15
- (a) Explain the function of TCP/IP protocol.
 - (b) What metrics are used to assess the performance of a network?
 - (c) Describe the relative advantages and disadvantages of (i) terrestrial links, (ii) satellite links and (iii) Optical fiber transmission.