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**HS/XII/V/CT/Paper-V/23**

**2 0 2 3**

**COMPUTER TECHNIQUE**

( Vocational Stream )

**( Computer Network )**

**( Theory )**

Paper : V

*Full Marks : 100*

*Time : 3 hours*

*The figures in the margin indicate full marks for the questions*

*General Instructions :*

- (i) Write all the answers in the Answer Script.
- (ii) Attempt Part—A (Objective Questions) serially.
- (iii) Attempt all parts of a question together at one place.

( PART : A—OBJECTIVE )

( Marks : 50 )

- 1.** Fill in the blanks from the list of words/phrases given below : 1×20=20

(a) A network of networks is known as \_\_\_\_\_.

(b) In a network, a machine identified by unique address is called \_\_\_\_\_.

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- (c) The physical address assigned by NIC manufacturer is called \_\_\_\_\_ address.
- (d) The \_\_\_\_\_ is a central connection point where all network cables are concentrated.
- (e) A network having a span within a building is called a \_\_\_\_\_.
- (f) The \_\_\_\_\_ is a network device that can connect the network segments based on the same protocol.
- (g) The \_\_\_\_\_ is a network device that connects dissimilar network.
- (h) The \_\_\_\_\_ topology has a central line and all nodes are connected to it.
- (i) \_\_\_\_\_ is a protocol that allows to send / upload email message from local computer to an e-mail server.
- (j) Wired networks communication media are called \_\_\_\_\_ media.
- (k) A computer network that spans a relatively large geographical area is called \_\_\_\_\_.
- (l) A network with a dedicated server is called a \_\_\_\_\_ network.
- (m) A MAC address consumes \_\_\_\_\_ bytes \_\_\_\_\_ bits.
- (n) \_\_\_\_\_ is a device that modulates an analog signal to digital and also demodulates a digital signal to analog.

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- (o) We can amplify the signal using \_\_\_\_.
- (p) A \_\_\_\_ is a set of rules that controls the data communication.
- (q) A \_\_\_\_ is the interconnection of LAN and MAN.
- (r) \_\_\_\_ cable has a single copper conductor at its center.
- (s) The bundle of data in a network travels in the form of a \_\_\_\_.
- (t) The Google Chrome is a popular \_\_\_\_.

**List of Words / Phrases**

Modem	Hub	Repeater	Co-axial
Packet	Intranet	Web browser	HTML
Client/Server	LAN	MAC	WAN
PAN	IP address	Protocol	Bridge
6,48	Guided	SMTP	Workstation
Bus	Topology	Gateway	TCP/IP

2. State whether the following statements are *True* or *False* :

1×10=10

- (a) Internet computers communicate through network.
- (b) Internet Explorer is the name of ISP.
- (c) A webpage is a collection of websites.
- (d) It is possible for two users to have the same e-mail address.
- (e) A hub is used to boost the signal strength as it passes along a cable.
- (f) Firewall prevents the network from intruders.

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- (g) A fibre-optic cable may transmit pulses of laser light in an all-digital network.
- (h) A dedicated server functions only as a server and is not used as a client or workstation.
- (i) Analog signals can take on many values.
- (j) A dial-up connection is more reliable than a direct connection.

**3.** Choose and write the correct answer :

1×5=5

- (a) What is the use of bridge in a network?
  - (i) To connect LANs
  - (ii) To separate LANs
  - (iii) To control network speed
  - (iv) All of the above
- (b) Each IP packet must contain
  - (i) only source address
  - (ii) only destination address
  - (iii) source and destination addresses
  - (iv) None of the above
- (c) Which of the following is the smallest network?
  - (i) WAN
  - (ii) MAN
  - (iii) PAN
  - (iv) LAN

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(d) Which type of transmission media is the least expensive to manufacture?

(i) Co-axial cable

(ii) Twisted-pair cable

(iii) CAT cable

(iv) Fibre-optic cable

(e) A device that forwards data packet from one network to another is called a

(i) bridge

(ii) router

(iii) hub

(iv) gateway

4. Write short notes on the following in not more than 4 to 5 sentences each (any five) : 3×5=15

(a) URLs

(b) Cookies

(c) Software libraries

(d) Language processor

(e) V-sat

(f) Hubs

(g) Tree topologies

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( PART : B—DESCRIPTIVE )

( Marks : 50 )

Answer any *two* questions from each Section

SECTION—I

( **Network Technologies** )

5. (a) What are the major types of networks? Explain. 4
- (b) What are the components of a computer network? Explain. 5
6. (a) Differentiate among simplex, half-duplex and full-duplex modes of data transmission. 6
- (b) What are analog and digital transmissions? 3
7. (a) What is switch? Why is it used in a network? Explain. 5
- (b) What is a file server? Explain its functions. 4
8. Write short notes on the following (any *two*) :  $4\frac{1}{2} \times 2 = 9$
- (a) Fibre optic
- (b) NIC
- (c) Workstations

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SECTION—II

( **Network Environment** )

9. (a) What are cookies? Explain. 4
- (b) What is DNS? Explain. 5
10. (a) What is file transfer protocols? Explain its advantages. 5
- (b) What is computer virus? What are the types of computer virus? Explain. 4
11. (a) What is TCP/IP? Explain the functions of each layer of TCP/IP. 3+4=7
- (b) What is TELNET? 2
12. (a) What is serial data transmission? What is parallel data transmission? Explain. 5
- (b) Write a short note on Remote Access Service. 4

SECTION—III

( **Network Application** )

13. What is HTML? What are container tag and empty tag? 2+5=7

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**14.** (a) What is a facsimile? Explain. 3

(b) Write short notes on the following : 2+2=4

(i) e-mail

(ii) Intranet

**15.** (a) What is the addressing of Internet? Explain. 3

(b) Explain class—A and class—B IP addresses. 4

**16.** Write short notes on the following :  $3\frac{1}{2}+3\frac{1}{2}=7$

(a) Routers

(b) POP

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