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(4th Semester)

BACHELOR OF COMPUTER APPLICATIONS

Paper No. : BCA–403

(Computer Networking)

(PART : A—OBJECTIVE)

(Marks : 25)

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

I. Put a Tick (✓) mark against the correct answer in the brackets provided :   1×10=10

1. Which of the following is a framework for defining standard for linking heterogeneous computers in a network?

   (a) ISO   (   )

   (b) OSI   (✓)

   (c) TCP/IP   (   )

   (d) All of the above   (   )

2. Which of the following is a connecting device in which it broadcasts data to every computer in a network?

    (a) HUB   (✓)

    (b) Switch   ( )

    (c) Router   ( )

    (d) Gateway   ( )

3. Anything that can carry information from source to destination is

    (a) guided medium   ( )

    (b) unguided medium   ( )

    (c) transmission medium (✓)

    (d) twisted pair   ( )

4. In optical fiber, signal is transmitted in the form of

    (a) electrical signal   ( )

    (b) magnetic signal   ( )

    (c) electromagnetic signal ( )

    (d) light signal   (✓)

(3)

5. Data-link layer is responsible for moving frames from

(a) node-to-node   (✓)

(b) host-to-host   (   )

(c) application to transport layer   (   )

(d) None of the above   (   )

6. The mechanism to detect and retransmit damage or loss frames is

(a) flow control   (   )

(b) error control   (✓)

(c) humming distance   (   )

(d) humming code   (   )

7. In which of the following each node in the domain has the entire topology of the domain, the list of nodes and links, etc?

(a) Distance vector routing   (   )

(b) Link-state routing   (✓)

(c) Shortest path tree   (   )

(d) Flooding   (   )

8. The connection establishment procedure in TCP is susceptible to a serious security problem called

   (a) denial of service attack   ( )

   (b) SYN flooding attack   (✓)

   (c) FIN flooding attack   ( )

   (d) ACK flooding attack   ( )

9. The well-known port number of HTTP is

   (a) 20   ( )

   (b) 21   ( )

   (c) 61   ( )

   (d) 80   (✓)

10. Which of the following requires a unique user-name and password to access the FTP directory?

    (a) Anonymous FTP   ( )

    (b) Non-anonymous FTP   (✓)

    (c) Telnet   ( )

    (d) None of the above   ( )

(5)

II. State whether the following statements are *True* or *False* by putting a Tick (✓) mark : 1×5=5

1. TCP and UDP are the protocols operating at the application layer.

    True   (   )   False   (✓)

2. Sine wave is defined by three characteristics—amplitude, frequency and phase.

    True   (✓)   False   (   )

3. ACK and NAK can flow in opposite direction for flow control and error control purposes.

    True   (✓)   False   (   )

4. Dissemination of link state packet (LSP) to every other node is called flooding.

    True   (✓)   False   (   )

5. IEEE Committee calls the gigabit ethernet under the name 802.3u.

    True   (   )   False   (✓)

III. Answer the following questions : 2×5=10

1. What is sine wave? Explain its characteristics.

2. Why do they twist the UTP cable?

3. What is stop-and-wait ARQ?

4. What are the services offered by TCP?

5. What is telnet?

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(4th Semester)

BACHELOR OF COMPUTER APPLICATIONS

Paper No. : BCA–403

(Computer Networking)

Full Marks : 75

Time : 3 hours

(PART : B—DESCRIPTIVE)

(Marks : 50)

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

1. (a) What is topology? Explain different
        types of topology with diagram.   1+5=6

    (b) Define networking. Explain different
        components of network.   1+3=4

                    Or

    (c) Explain the four levels of addresses that
        are used in an Internet employing
        TCP/IP protocols.   4

(d) What is transmission impairment? Explain the common types of transmission impairment in data communication with suitable diagram. 1+5=6

2. *(a)* What is multiplexing? Write the difference between frequency division multiplexing (FDM) and time division multiplexing (TDM). 1+5=6

(b) Explain the propagation modes of fiber optic cable. 4

Or

(c) What is circuit-switch network? Explain different phases involved in circuit switching with diagram. 1+3=4

(d) Write notes on the following : 3+3=6

    (i) Radio waves

    (ii) Microwaves

3. *(a)* Explain the following : 2×5=10

    (i) Redundancy

    (ii) Checksum

    (iii) Humming code

    (iv) Cyclic redundancy check (CRC)

    (v) Parity check bit

Or

(b) (i) Differentiate between error detection and error correction. 2+2=4

(ii) Write two functions of data-link layer. 2

(iii) What will be the humming distance of d(10101, 11110)? 2

(iv) What will be the minimum humming distance of d(000, 011), d(001, 110), d(011, 100)? 2

4. (a) (i) What is IP address? Explain the difference between IPv4 and IPv6.

1+4=5

(ii) Write the functions of transport layer. 5

Or

(b) (i) Explain the three-way handshaking method of TCP for connection termination with diagram. 5

(ii) Explain the distance vector routing with suitable diagram. 5

5. (a) Mention one area where you can find the use of HTTP. In what way HTTP is similar to FTP and SMTP? Explain the working mechanism of HTTP protocol.

1+2+3=6

Or

(b) (i) Differentiate between error detection and error correction. 2+2=4

(ii) Write two functions of data-link layer. 2

(iii) What will be the humming distance of d(10101, 11110)? 2

(iv) What will be the minimum humming distance of d(000, 011), d(001, 110), d(011, 100)? 2

4. (a) (i) What is IP address? Explain the difference between IPv4 and IPv6. 1+4=5

(ii) Write the functions of transport layer. 5

Or

(b) (i) Explain the three-way handshaking method of TCP for connection termination with diagram. 5

(ii) Explain the distance vector routing with suitable diagram. 5

5. (a) Mention one area where you can find the use of HTTP. In what way HTTP is similar to FTP and SMTP? Explain the working mechanism of HTTP protocol.

1+2+3=6

(b) What do you mean by FTP? Explain two
types of FTP connections.   2+2=4

Or

(c) What is wireless LAN? Explain the two
promising wireless technologies for
LANs.   1+6=7

(d) What is Domain Name System? Briefly
explain the generic domains and
country domains by giving example. 1+2=3

★ ★ ★