Professional Course Examination, May 2024

(CBCS)

(4th Semester)

BACHELOR OF COMPUTER APPLICATIONS

(Computer Networking—I)

Full Marks : 75

Time : 3 hours

The figures in the margin indicate full marks for the questions

(PART : A—OBJECTIVE)

(*Marks* : 25)

SECTION—I

(*Marks* : 15)

A. Tick (✓) the correct answer in the brackets provided : 1×10=10

1. 198.2.2.1 IP address belongs to which IP class?
   (a) Class A ( )
   (b) Class B ( )
   (c) Class C ( )
   (d) Class D ( )

2. Which one of the following network devices connects two networks?
   (a) Bridge ( )
   (b) Hub ( )
   (c) Repeater ( )
   (d) Gateway ( )

3. Which of the following topologies provides highly fault tolerant architecture?

(a) Star ( )

(b) Bus ( )

(c) Ring ( )

(d) Mesh ( )

4. _____ refers to the loss of signal strength.

(a) Attenuation ( )

(b) Distortion ( )

(c) Noise ( )

(d) Crosstalk ( )

5. One of the benefits of encasing a twisted-pair cable is the

(a) reduction of crosstalk ( )

(b) reduction of noise ( )

(c) increase in flexibility ( )

(d) decrease in costs ( )

6. How many bits are required to encode 64-level PCM?

(a) 7 ( )

(b) 6 ( )

(c) 5 ( )

(d) 4 ( )

7. The difference between the corresponding bits in two code words is called

(a) Hamming distance ( )

(b) Hamming code ( )

(c) bit stuffing ( )

(d) byte stuffing ( )

8. Four bits are used for packet sequence number in sliding window protocol. What is the maximum window size?

(a) 4 ( )

(b) 8 ( )

(c) 15 ( )

(d) 16 ( )

9. The header length of IPv6 is

(a) 16 ( )

(b) 30 ( )

(c) 32 ( )

(d) 40 ( )

10. Which layer in the IEEE 802.11 protocol stack has the function of flow control and error control?

(a) Physical layer ( )

(b) Logical link control layer ( )

(c) Medium access layer ( )

(d) None of the above ( )

B. State whether the following statements are *True* or *False* : 1×5=5

1. POP3 is the protocol used to receive Email.

(T / F)

2. Telnet allows user to connect client machine.

(T / F)

3. In link-state routing, the updating packets are sent periodically.

(T / F)

4. Analog signal is discrete in nature.

(T / F)

5. Radio waves are omnidirectional.

(T / F)

SECTION—II

(*Marks* : 10)

2×5=10

C. Answer the following questions :

1. *(a)* What is the main function of switch?

OR

(b) Explain ring topology.

2. *(a)* Explain the working of coaxial cable.

OR

(b) Explain circuit switching.

3. *(a)* Explain parity in context of error detection.

OR

(b) Explain jitter for flow control.

4. *(a)* Explain IPv6 address in brief.

OR

(b) What is flooding in the context of data routing?

5. *(a)* What is telnet?

OR

(b) Explain FTP in brief.

(PART : B—DESCRIPTIVE)

(*Marks* : 50)

10×5=50

D. Answer the following questions :

1. *(a)* Explain different types of network based on their coverage area. 6

(b) Explain the working of modem. 4

[*Contd.*

OR

2. *(a)* Explain TCP/IP protocol suit with appropriate diagram. 7

   (b) What are transmission impairments? 3

3. *(a)* Explain amplitude-shift keying. 5

   (b) Explain frequency-shift keying. 5

OR

4. Explain FDM, WDM and TDM with appropriate diagrams. 10

5. *(a)* Explain cyclic redundancy check. 5

   (b) If dataframe is 1101011011 and generator is 10011, what will be the checksum frame if encoded in CRC? 5

OR

6. *(a)* Explain Hamming code for error detection. 5

   (b) If dataframe is 10001001, what will be the transmitted frame after encoded with Hamming code with even parity? 5

7. Explain Stop-and-Wait ARQ with suitable figure. Also explain how it handles damaged frame, lost frame and lost acknowledgement. 10

OR

8. Explain Go-Back-N ARQ. Also explain how it handles damaged frame and damage RR (receive ready). 10

9. *(a)* Explain UPD protocol with header diagram. 6

   (b) Explain distance-vector routing. 4

OR

10. *(a)* Explain the specification and working of 100BaseX ethernet. 5

    (b) Explain the working of DNS. 5

***