Professional Course Examination, 2021

(4th Semester)

BACHELOR OF COMPUTER APPLICATIONS

Course : BCA/4/CC/21 (New)

(Computer Networking—I)

Full Marks : 75

Time : 3 hours

INSTRUCTIONS TO CANDIDATES

(Please read the instructions carefully before you start writing your answers)

1. Questions should be attempted as per instructions.
2. Do not copy the Questions. Indicate the Part and Section with Question No. clearly while attempting the answer.
3. For Multiple choice answer, candidate should indicate the **Question No., Sub. No., (if any) and the correct answer. For example :**

   1. Name the State capital of Mizoram.

   (a) Lunglei

   (b) Aizawl

   (c) Champhai

   Candidate should provide answer as—Q. No. *1* : *(b) Aizawl*
   [Candidate should **avoid** writing only *(b)*]
4. The figures in the margin indicate full marks for the questions.

(PART : A—OBJECTIVE)

(*Marks* : 25)

SECTION—I

(*Marks* : 15)

Choose the correct answer from the options provided : 1×10=10

1. In mesh topology, the number of cable requirements can be calculated by using a formula

(a) n-1

(b) (n-1)/2

(c) n(n-1)/2

(d) 2n-1

2. Which one is not a protocol in transport layer?

(a) UDP

(b) TCP

(c) FTP

(d) SCTP

3. Which transmission medium has the highest transmission speed in a network?

(a) Twisted pair cable

(b) Coaxial cable

(c) Optical fiber

(d) Microwave

4. The frequency range of microwaves is

(a) 3 kHz to 1 GHz

(b) 1 GHz to 300 GHz

(c) 300 GHz to 400 GHz

(d) 300 GHz to 400 THz

5. What will be the humming distance of d(10101, 11110)?

(a) 1

(b) 2

(c) 3

(d) 4

6. Data link layer is responsible for

(a) node-to-node delivery

(b) host-to-host delivery

(c) process-to-process delivery

(d) None of the above

7. The service(s) offered by TCP is/are

(a) reliable services

(b) process-to-process communication

(c) full-duplex communication

(d) All of the above

8. The well-known port number of FTP is

(a) 21

(b) 23

(c) 69

(d) 80

9. It is a protocol designed to handle real-time traffic on the Internet.

(a) FTP

(b) HTTP

(c) RTP

(d) TCP

10. IEEE created fast ethernet under the name

(a) 801.2u

(b) 801.2z

(c) 802.3u

(d) 802.3z

Choose and write the correct answer (True/False) : 1×5=5

11. Telephone company network that provides a high speed DSL line to the customers is a good example of local area network (LAN).

(a) True

(b) False

12. The process of converting analog signal into digital signal so that they can be processed by a receiving computer is called digitizing.

(a) True

(b) False

13. Data link layer is divided the stream of bit into manageable data unit called frames.

(a) True

(b) False

14. The user datagram protocol (UDP) is connection-oriented, reliable, transport layer protocol.

(a) True

(b) False

15. The user agent protocol of electronic mail is simple mail transfer protocol (SMTP).

(a) True

(b) False

SECTION—II

(*Marks* : 10)

Answer the following questions : 2×5=10

16. *(a)* What do you mean by metropolitan area network (MAN)?

OR

(b) Differentiate between analog signal and digital signal.

17. *(a)* Briefly explain the two types of twisted-pair cable.

OR

(b) Briefly explain the different concentric layers of fiber optic cable.

18. *(a)* Write some of the important functions of data link layer.

OR

(b) What do you mean by Go-Back-N ARQ?

19. *(a)* What is flooding?

OR

(b) Write a short note on IPv4.

20. *(a)* What do you understand by Bluetooth?

OR

(b) In what way HTTP is similar to FTP and SMTP?

(PART : B—DESCRIPTIVE)

(*Marks* : 50)

Answer the following questions : 10×5=50

1. *(a)* What do you mean by transmission impairment? Explain the different types of transmission impairment with diagram. 6

(b) Explain the difference between router and gateway. 4

OR

2. *(a)* What is OSI reference model? Write and explain the difference between OSI model and TCP/IP model. 6

(b) Write and explain the advantages of computer networking. 4

3. *(a)* What is switched network? Explain the difference between circuit-switch network and datagram network with suitable diagram. 6

(b) How does guided media differ from unguided media? 4

OR

4. *(a)* What do you mean by multiplexing? Explain the difference between frequency division multiplexing (FDM) and time division multiplexing (TDM) with suitable diagram. 6

(b) What is an infrared wave? Write the advantages and disadvantages of infrared waves for communication. 4

5. *(a)* Explain the difference between stop-and-wait ARQ and selective-repeat ARQ. 6

(b) How are error control and error detection different? 4

OR

6. *(a)* Write notes on the following : 3×2=6

(i) Cyclic redundancy check (CRC)

(ii) Minimum humming distance

(b) Discuss the role of humming code and parity bit in checking error. 4

7. *(a)* Explain the difference between distance vector routing and link state routing. 6

(b) What is an IP address? Write the advantages of IPv6 over IPv4. 4

OR

8. *(a)* Explain the connection establishment and connection termination in TCP with suitable diagram. 6

(b) What do you mean by ICMP? Explain the different types of messages in ICMP. 4

9. *(a)* Explain the mechanism of remote login with TELNET. 6

(b) Differentiate between FTP and TFTP. 4

OR

10. *(a)* What is wireless LAN? Explain the two promising wireless technologies for LAN with diagram. 6

(b) What is domain name system (DNS)? Explain the different types of domain name system with example. 4

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