

B.Tech. DEGREE EXAMINATION, NOVEMBER 2023
Sixth Semester

18ECC303J – COMPUTER COMMUNICATION NETWORKS
(For the candidates admitted from the academic year 2020-2021 to 2021-2022)

Note:

- (i) **Part - A** should be answered in OMR sheet within first 40 minutes and OMR sheet should be handed over to hall invigilator at the end of 40th minute.
- (ii) **Part - B & Part - C** should be answered in answer booklet.

Time: 3 hours

Max. Marks: 100

PART – A (20 × 1 = 20 Marks)

Marks BL CO PO

Answer ALL Questions

1. The number of full duplex links required in mesh topology to connect 10 devices is _____.
(A) 10 (B) 100
(C) 90 (D) 45
2. The minimum payload length of IEEE 802.3 frame is _____ bytes.
(A) 45 (B) 3200
(C) 1500 (D) 8190
3. _____ switching is well suited for voice communication.
(A) Message (B) Packet
(C) Circuit (D) Switch Network
4. A 10 base 5 Ethernet LAN has maximum cable length of _____ meter without any repeater and bridges
(A) 5 (B) 10
(C) 100 (D) 500
5. What is the hamming distance between these two codes 10010010 and 11011001?
(A) 3 (B) 4
(C) 6 (D) 2
6. _____ layer is responsible for process to process delivery
(A) Network (B) Transport
(C) Session (D) Datalink
7. In CRC if the data unit is 100111001 and the divisor is 1011 then what is the dividend at the receiver
(A) 100111001101 (B) 100111001011
(C) 100111001 (D) 100111001110
8. In Go-Back-N ARQ, if frames 415 and 6 are received successfully, the receiver may send an ACK _____ to the sender.
(A) 6 (B) 7
(C) 5 (D) 8

9. Identify the class of given IPV4 address 252.5.15.111 1 2 3 3
 (A) Class - A (B) Class - D
 (C) Class - C (D) Class - E
10. Count to infinity problem occur in _____ 1 1 3 7
 (A) DVR (B) LSR
 (C) BGP (D) Hierarchical Routing
11. The address space of IPV6 is _____ addresses. 1 1 3 3
 (A) 2^{96} (B) 2^{32}
 (C) 2^{128} (D) 2^{124}
12. _____ is the inter domain routing protocol that uses path vector routing. 1 1 3 6
 (A) Link Protocol (B) Border Gateway Protocol
 (C) Routing Information Protocol (D) OSPF
13. What is the maximum size of a UDP datagram? 1 1 4 7
 (A) 0 bytes (B) 232 bytes
 (C) 216 bytes (D) 28 bytes
14. The condition of starvation occurs in _____ technique. 1 1 4 7
 (A) Leaky Bucket (B) Token Bucket
 (C) Priority Bucket (D) FIFO Queuing
15. _____ control keeps the load below the capacity in a network 1 1 4 7
 (A) Flow (B) Error
 (C) Congestion (D) Speed
16. TCP uses _____ bit checksum 1 1 4 7
 (A) 8 (B) 16
 (C) 24 (D) 32
17. HTTP uses the service of _____ 1 1 5 3
 (A) TCP (B) UDP
 (C) IP (D) DNS
18. SMTP uses _____ protocol 1 1 5 3
 (A) Push (B) Pull
 (C) Push and Pull (D) Neither Push nor Pull
19. FTP uses the resources of _____ 1 1 5 3
 (A) HDLC (B) UDP
 (C) TCP (D) IP
20. In DNS, a full domain name is a sequence of labels repeated by _____ 1 1 5 3
 (A) Dots (B) Colon
 (C) Semicolon (D) Slash

PART – B (5 × 4 = 20 Marks)

Answer ANY FIVE Questions

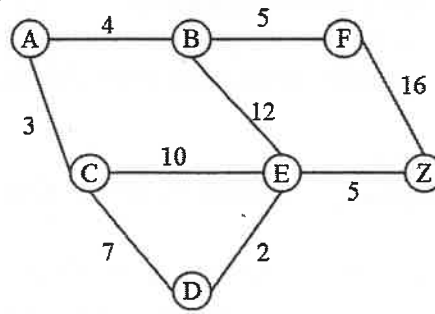
| | Marks | BL | CO | PO |
|---|-------|----|----|----|
| 21. Why does a circuit switched network need end to end addressing during setup and teardown phase? Why no addresses are needed during data transfer phase? | 4 | 2 | 1 | 7 |
| 22. Draw and explain the control format for I-frame in HDLC protocol. | 4 | 2 | 2 | 12 |
| 23. Why is the window size of the sender in GO-BACK-N ARQ chosen lesser than 2^m ? Justify your answer with flow diagram by considering $m=2$. | 4 | 2 | 2 | 3 |
| 24. What is mask in IPV4 addressing? What are the default mask for class A,B and C? | 4 | 1 | 3 | 7 |
| 25. Justify: Today's Traffic. | 4 | 2 | 4 | 7 |
| 26. Encrypt the message "CITIZEN OF INDIA" using Caesar cipher with a key of 15. Ignore the space between the words. | 4 | 2 | 5 | 3 |
| 27. The sender transmits 2 blocks of data which is 10010011 and 11001100. Find the checksum at the sender site. | 4 | 2 | 2 | 3 |

PART – C (5 × 12 = 60 Marks)

Answer ALL Questions

| | Marks | BL | CO | PO |
|--|-------|----|----|----|
| 28. a. Briefly explain the working of Token Ring and the frame format of IEEE 802.5 standard. | 12 | 3 | 1 | 7 |
| (OR) | | | | |
| b. i. Explain the various phases involved in communication via circuit switched network with neat diagram. | 8 | 4 | 1 | 7 |
| ii. Compare synchronous and Asynchronous transmission. | 4 | 3 | 1 | 7 |
| 29. a. A bit stream 110101 is to be transmitted using the standard CRC method. The generator polynomial is $x^4 + x + 1$. Find the Code word. | 12 | 4 | 2 | 3 |
| (OR) | | | | |
| b. Analyse the different scenario by suitable flow diagram function STOP and WAIT protocol. | 12 | 4 | 2 | 3 |
| i. A frame 0 is sent and acknowledged. | | | | |
| ii. The second Frame its sent and acknowledged but acknowledgement is lost. | | | | |
| iii. The second frame is resent but it is time out. | | | | |
| iv. The second frame is resent and acknowledged. | | | | |

30. a. Define and implement Dijkstra algorithm and find shortest path from A to Z. 12 4 3 3



(OR)

- b. List out and explain the types of packets in BGP 12 2 3 7
31. a. What is the congestion control? Explain the various techniques adopted in open loop congestion control mechanism. 12 2 4 7

(OR)

- b. Describe the segment format of TCP and UDP with diagram. 12 3 4 7
32. a. Explain Data Encryption Standard (DES) algorithm illustrate how 64-bit plain text is converted in to 64 bit cipher text. 12 4 5 3

(OR)

- b. Write a note on 2 5 3
- Communication over control and data connection in FTP. 6
 - Request messages in FTTP. 6

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