| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ii. | How is routing loop prevented in RIP and BGP? | 5 | 2 | 3 | 7 |

**(OR)**

| | | | | | |
|---|---|---|---|---|---|
| b.i. | What is subnetting? If the host IP address is 135.54.65.42 and subnet mask is 255.255.240.0, find the first and last address of this subnet. | 5 | 3 | 3 | 3 |
| ii. | Draw the IPv6 datagram format. Also list the drawback of IPv4. | 5 | 2 | 3 | 7 |
| 29. a.i. | From the UDP header content sequence CB84000D00ICFFFF, find:<br>(1) Source and destination port numbers<br>(2) Length of data and total length of UDP datagram | 5 | 4 | 4 | 7 |
| ii. | Differentiate the closed loop congestion control techniques. | 5 | 4 | 4 | 7 |

**(OR)**

| | | | | | |
|---|---|---|---|---|---|
| b.i. | Draw the TCP segment format with appropriate field markings. How is transmission window size is adjusted in connection with congestion control? | 5 | 2 | 4 | 7 |
| ii. | Draw and explain the leaky bucket implementation with FIFO queuing. | 5 | 2 | 4 | 7 |
| 30. a.i. | Classify compression techniques and give examples. Also write short note on JPEG compression process. | 5 | 2 | 5 | 5 |
| ii. | List various network management functions and briefly explain the concept of SNMP. | 5 | 2 | 5 | 12 |

**(OR)**

| | | | | | |
|---|---|---|---|---|---|
| b.i. | List the SIP messages and illustrate their purpose with a sample session. | 5 | 2 | 5 | 5 |
| ii. | Draw an email handing scenario to show the email agents and protocols involved and briefly mention their scope. | 5 | 2 | 5 | 12 |

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**B.Tech. DEGREE EXAMINATION, NOVEMBER 2022**
Sixth Semester

18ECC303J – COMPUTER COMMUNICATION NETWORKS
*(For the candidates admitted from the academic year 2018-2019 to 2019-2020)*

**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** should be answered in answer booklet.

Time: 2½ Hours Max. Marks: 75

**PART – A (25 × 1 = 25 Marks)**
Answer **ALL** Questions

| | | Marks | BL | CO | PO |
|---|---|---|---|---|---|
| 1. | _____ is the maximum number of symbols that can be represented by Unicode.<br>(A) $2^{16}$ (B) $2^{32}$<br>(C) $2^{64}$ (D) $2^{128}$ | 1 | 1 | 1 | 7 |
| 2. | Name of the data packet in data link layer is _____<br>(A) Datagram (B) Segment<br>(C) Frame (D) Format | 1 | 1 | 1 | 7 |
| 3. | _____topology uses multipoint connection.<br>(A) Bus (B) Star<br>(C) Ring (D) Mesh | 1 | 2 | 1 | 12 |
| 4. | In a six node topology, how many ports are needed for each device?<br>(A) 1 (B) 5<br>(C) 6 (D) 15 | 1 | 2 | 1 | 7 |
| 5. | 10 base 5 ethernet LAN has a maximum segment length of _____meters.<br>(A) 5 (B) 10<br>(C) 50 (D) 500 | 1 | 2 | 1 | 12 |
| 6. | How many errors can be corrected by a scheme with $d_{min} = 4$?<br>(A) 1 (B) 2<br>(C) 3 (D) 4 | 1 | 3 | 2 | 3 |
| 7. | How many bytes of padding must be added in Ethernet data link layer when it receives a 42 byte datagram?<br>(A) 4 (B) 6<br>(C) 22 (D) 58 | 1 | 2 | 2 | 3 |
| 8. | Calculate the checksum for the data sequence 1000 1010 0100 0011<br>(A) 0011 (B) 1010<br>(C) 0101 (D) 1100 | 1 | 2 | 2 | 3 |

9. _____is not a random access mechanism. 1 1 2 7
(A) CDMA (B) CSMA/CD
(C) CSMA/CA (D) Slotted Aloha

10. _____is IEEE standard for token bus. 1 1 2 7
(A) 802.3 (B) 802.4
(C) 802.5 (D) 802.11

11. _____is a loop address. 1 1 3 7
(A) 0.0.0.0 (B) 127.0.0.0
(C) 172.16.0.0 (D) 255.255.0.0

12. Which of the following is not a BGP message? 1 1 6 7
(A) Hello (B) Update
(C) Keep alive (D) Notification

13. Identify the private address 1 2 3 6
(A) 100.0.0.0 (B) 172.0.0.0
(C) 192.168.0.0 (D) 255.255.255.255

14. When you create 1024 subnets in a block 130.56.0.0/16, how many addresses will be there in each subnet? 1 3 3 3
(A) $2^{16}$ (B) $2^{10}$
(C) $2^{6}$ (D) $2^{4}$

15. Which of the following is not supportive protocol in network layer? 1 1 3 7
(A) ARP (B) RSVP
(C) RARP (D) ICMP

16. What is the size of TCP sending window in 'shunt down' state? 1 2 4 7
(A) 0 (B) 1
(C) Half of previous window size (D) No change in window size

17. If the TCP flag field value is 000010, then it is _____segment. 1 1 4 7
(A) ACK (B) FIN
(C) EYN (D) RST

18. Which of the following protocol does not use UDP? 1 2 4 7
(A) RIP (B) FTP
(C) SNMP (D) RTP

19. What is the maximum number of data types that can be encapsulated in a UDP datagram? 1 2 4 7
(A) 16,384 (B) 16,376
(C) 65,535 (D) 65,527

20. Which of the following congestion control techniques uses a separate notification packet? 1 1 4 7
(A) Implicit signaling (B) Explicit signaling
(C) Back pressure (D) Choke packet



21. _____is SIP message for session termination. 1 1 5 3
(A) Cancel (B) Notify
(C) Bye (D) Finish

22. _____application uses peer-to-peer paradigm. 1 1 5 3
(A) FTP (B) Email
(C) IP telephony (D) WWW

23. Find the plain text (P) of given ciphertext C=13 using decryption key d =7. (Assume that prime numbers used are 3 and 11) 1 2 5 3
(A) 1 (B) 3
(C) 7 (D) 11

24. Which of the following is present in both HTTP request line and status line? 1 1 5 3
(A) Version (B) URL
(C) Status code (D) Method

25. Identify the protocol used in pulling email message from server by client 1 1 5 3
(A) Simple mail transfer protocol (B) Post office protocol
(C) File transfer protocol (D) Simple network management protocol

**PART – B (5 × 10 = 50 Marks)** Marks BL CO PO
Answer **ALL** Questions

26. a.i. Tabulate the layers of OSI reference model and mention their functions. 5 2 1 12

ii. State the merits and demerits of datagram type of packet switching. 5 2 1 7

**(OR)**

b.i. What are synchronous and asynchronous data transfer modes? List their pros and cons. 5 2 1 7

ii. Classify network topologies and highlight their applications. 5 2 1 12

27. a.i. Analyze the error detecting capabilities of cyclic code using polynomials. 5 4 2 3

ii. Draw and interpret the format of HDLC control field. 5 2 2 3

**(OR)**

b.i. Justify the maximum limit on sending window size setting of selective repeat protocol with relevant diagrams. 5 4 2 3

ii. Show how a medium access control is done in token ring using suitable sketches. 5 2 2 3

28. a.i. Given the IP address 218.76.134.68 find the default mask, network address and range of block. Also, mention the advantages of classless addressing. 5 3 3 3