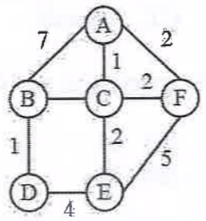
27. a.i.	Enumerate the various persistant methods in CSMA.	5	3	2	3
ii.	For the given data word 10100111 and the divisor 10111, construct the codeword at the sender site.	5	4	2	3
	(OR)				
b.i.	Analyse the given scenario by suitable flow diagram for STOP and WAIT protocol. (1) A frame zero is sent and acknowledged. (2) The second frame is sent and acknowledge but acknowledge is lost. (3) The second frame is resent but it is timed out. (4) The second frame is resent and acknowledged.	6	4	2	3
ii.	Draw and explain the control format for I-frame in HDLC protocol.	4	3	6	12
28. a.i.	Illustrate the count to infinity problem in DVR by suitable diagrams.	4	3	6	12
ii.	Draw and explain the IPV4 datagram format.	6	4	3	3
	(OR)				
b.	Construct the routing table for the node-A (Pick this as root node) by implementing Dijisktra's algorithm to find the shortest path.	10	4	6	12



29. a.	Draw the TCP segment format and describe the function of its header fields in detail.	10	3	4	7
	(OR)				
b.	Explain how are leaky bucket and token bucket implementations helpful for traffic shaping? Draw their hybrid model with FIFO queing and highlight its advantages.	10	4	4	7
30. a.i.	Discuss the message types in HTTP.	5	3	5	3
ii.	Demonstrate the following scenario in Email architecture. (1) When the sender and receiver are on the same system. (2) When the sender and receiver are connected to mail server via LAN or WAN.	5	3	5	3
	(OR)				
b.i.	Using e=13, d=37 and n = 77 in RSA algorithm, encrypt the message "GOOD" using the values of 00 to 25 for letters A to Z. For simplicity, do the encryption and decryption character by character.	5	4	5	3
ii.	Encrypt the message "COMPUTER NETWORKS" using shift cipher with a key 23. Ignore the space between words.	5	4	5	3

* * * * *

Reg. No.														

B.Tech. DEGREE EXAMINATION, MAY 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.	The number of full duplex links required in mesh topology to connect 25 devices is _____ (A) 150 (B) 200 (C) 250 (D) 300	1	2	1	7
2.	_____frame in token ring contains start delimeter and end delimeter. (A) Token (B) Abort (C) Date (D) Command	1	1	1	12
3.	The minimum size of frame length in Ethernet is _____ (A) 0 (B) 32 (C) 54 (D) 46	1	2	1	12
4.	Which topology requires a central controller or hub? (A) Star (B) Mesh (C) Bus (D) Ring	1	1	1	7
5.	In _____layer can have only message switching. (A) Physical (B) Application (C) Network (D) Datalink	1	1	1	7
6.	Bit stuffing based frame protocol uses 8-bit delimeter pattern 01111110. If the output bit string after stuffings is 01111100101, then the output bit string is (A) 0111110100 (B) 0111110101 (C) 0111110001 (D) 0111111101	1	2	2	3
7.	Consider the CRC generator as $x^7+x^6+x^3+x+1$. The corresponding binary pattern obtained is (A) 11010101 (B) 11011111 (C) 11010011 (D) 11011011	1	2	2	3

8. For the given codeword $\{0000, 01111\}$, determine the hamming distance between codeword. 1 2 2 3
(A) 2 (B) 3
(C) 4 (D) 1

9. A sender has sliding window of size 15. The first 15 frames are sent. The first ACK received is ACK 15. How many frames has the receiver accepted? 1 1 2 3
(A) Frame 15 (B) Frame 14
(C) Frame 0 to 15 (D) Frame 0 to 14

10. In _____method, after the station finds the line idle, it sends its frame immediately. 1 1 2 7
(A) P-persistent (B) I-persistent
(C) Non-persistent (D) Q-persistent

11. The address hold by class-C in address space of IPV4 is 1 2 3 3
(A) 50% (B) 25%
(C) 12.5% (D) 6.25%

12. The data field in IP cannot carry which of the following 1 1 3 3
(A) TCP segment (B) UDP segment
(C) ICMP messages (D) SMTP messages

13. In distance vector routing, each node shares its routing table with its _____ 1 1 6 12
(A) Immediate neighbours (B) All neighbours
(C) Few neighbours (D) Distant neighbours

14. In hexadecimal colon notation of IPv6, the address consists of _____hexadecimal digits. 1 1 3 3
(A) 8 (B) 16
(C) 24 (D) 32

15. An address space has a total of 2048 addresses. How many bits are needed to represent an address space? 1 2 3 12
(A) 8 (B) 9
(C) 10 (D) 11

16. UDP is not suitable for _____ 1 1 4 7
(A) Multicasting (B) SNMP
(C) FTP (D) RIP

17. What is the maximum size (in byte) of the process data that can be encapsulated in UDP datagram? 1 2 4 7
(A) 1024 (B) 16,384
(C) 2048 (D) 65,535

18. The SYN flooding attack belongs to a type of security attack known as _____ 1 1 4 7
(A) Traffic analysis attack (B) Denial service attack
(C) Man in the middle attack (D) Physical attack

19. Which of the following is not scheduling technique? 1 1 4 7
(A) FIFO queuing (B) LIFO queuing
(C) Priority queuing (D) Weighted fair queuing

20. In_____a warning from the router which has encountered congestion is sent to the source station directly. 1 1 4 7
(A) Choke packet (B) Implicit signaling
(C) Explicit signaling (D) Back pressure

21. The application level protocol in which a few manager stations control a set of agents is called _____ 1 1 5 3
(A) HTML (B) TCP
(C) SNMP (D) SNMP/IC

22. Decrypt the message "pgvyqtm" using monoalphabetic method with key =2 1 2 5 3
(A) Netplay (B) Network
(C) Netstar (D) Netwalk

23. The size of the cipherkey used at the encryption and decryption in DES is _____ bits. 1 1 5 3
(A) 32 (B) 48
(C) 56 (D) 64

24. _____is a stateless protocol. 1 1 5 3
(A) HTTP (B) FTP
(C) TELNET (D) TCP

25. _____is designed to be independent of the underlying transport layer. 1 2 5 3
(A) TCP (B) UDP
(C) SCTP (D) SIP

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

26. a.i. Point out the advantages and disadvantages of star and mesh topology. 4 3 1 7

ii. Draw and explain the frame format of IEEE 802.5 standard. 6 4 1 12

(OR)

b.i. Compare circuit switching and packet switching. 4 4 1 7

ii. Draw and explain the frame format of IEEE 802.3 standard. 6 3 1 12