Reg. No.															

B.Tech. DEGREE EXAMINATION, MAY 2022

Fourth Semester

18CSS202J – COMPUTER COMMUNICATIONS

(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 protocol data unit is encapsulated in this order (A) Data, segments, packets, frames, bits (B) Data, bits, segments, frames, packets (C) Bits, frames, packets, segments, data (D) Packets, frames, bits, segments, data	1	1	1,2	2
2. Using TCP/IP protocol suit, 'A' transmits data 'D' to 'B'. A congestion occurs in the link. Which one of the protocol is used to inform 'A' about congestion? (A) TCP (B) IP (C) ICMP (D) SNMP	1	1	1,2	2
3. Which of the following switching techniques alleviates the necessity to follow the same path for a message until it reaches the destination? (A) Virtual approach to circuit switching (B) Virtual approach to datagram switching (C) Circuit switching (D) Packet switching	1	1	1,2	2
4. Mark the correct statement (A) Mac address in packet (B) IP address in frame (C) Physical address in datagram (D) Port address in segment	1	1	1,2	2
5. In the context of packet switched network, why does a transport layer connection requires a three way hand-shake. (A) Multiple simultaneous connections are possible at receiver end (B) Assurance for packet delivery both at sender and receiver sides (C) Unreliable duplex channel (D) Prompt delivery of requests	1	1	1,2	2
6. In a block 'X', one of the IP address is 172.16.16.16. What is the size of 'X' and the network address of 'X'? (A) 256 and 172.16.16.0 (B) 256 and 172.16.16.255 (C) 65, 536 and 172.16.0.0 (D) 65, 536 and 172.16.16.0	1	2	2,3	3

7. 192.168.10.36/27 is one of the IP address in an organization. What are the number of subnets in the organization and the network address of given IP address? 1 2 2,3

(A) 256 and 192.168.10.0 (B) 16 and 192.168.10.16
(C) 8 and 192.168.10.32 (D) 2 and 192.168.10.128

8. A router receives a packet with destination address 132.168.16.4/20. Find the broadcast address for the network. 1 2 2,3 3

(A) 132.168.255.255 (B) 132.168.16.255
(C) 132.168.31.255 (D) 132.168.15.255

9. The supernet address for 192.168.10.0/24 and 192.168.11.0/24 is 1 2 2,3 3

(A) 192.168.10.0/24 (B) 192.168.21.0/24
(C) 192.168.0.0/23 (D) 192.168.10.0/23

10. Given, IP addresses in binary, 1 2 2,3 3
10101100.00010000.00001010.00001000
10101100.00010000.00001000.00001000
Find the supernet address

(A) 172.16.10.0/24 (B) 172.16.8.0/22
(C) 172.16.8.0/24 (D) 172.16.10.0/22

11. Given number of channels = 5 with a bandwidth of 50 kHz for each channel with a guard of 10kHz. Find the maximum bandwidth of the link. 1 2 2,3, 4 3

(A) 300 (B) 290
(C) 270 (D) 250

12. Wide – Half bit pulse output is obtained from which o the following line coding scheme? 1 2 2,3, 4 3

(A) Unipolar – RZ (B) Bipolar – RZ
(C) RZ – AMI (D) Manchester coding

13. The problem of synchronizing data source, can be resolved by using 1 2 2,3, 4 3

(A) Bit stuffing (B) Byte stuffing
(C) Pulse stuffing (D) Character stuffing

14. Co-axial cable is less susceptible to interfering noise than twisted pair cable due to 1 3 2,3, 4 3

(A) Insulating material (B) Diameter of cable
(C) Inner conductor (D) Outer conductor

15. This scheme is also referred as ON-Off keying 1 3 2,3, 4 3

(A) Amplitude shift key (B) Phase shift key
(C) Frequency shift key (D) Time shift key

16. Given the original message 'M' as 1001101, manipulated by hamming code. The even parity values of r_8, r_4, r_2, r_1 are 1 3 2,3, 5 3

(A) 0011 (B) 1110
(C) 1101 (D) 1001

17. While sending 11 number of packets using stop and wait protocol, every 4th packet is lost. How many number of transmissions are required for sending all packets? 1 3 2,3,5 3

(A) 13 (B) 15
(C) 44 (D) 3

18. The transmitter continuously senses the transmission medium until it becomes idle. This access method is called _____. 1 3 2,3,5 3,4

(A) 1 – persistent (B) P-Persistent
(C) Non – Persistent (D) Pure – Aloha

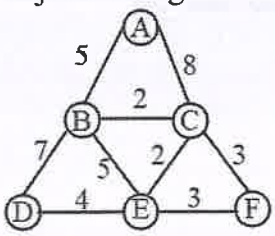
19. The value of N in go-back should be 1 3 2,3,5 3,4

(A) 0 (B) 1
(C) Less than 1 (D) Greater than 1

20. $x^7 + x^5 + 1$ is divided by the polynomial $x^3 + 1$. The reminder is 1 3 2,3,5 3,4

(A) 1100 (B) 1101
(C) 0110 (D) 0111

21. After every node calculates shortest path to every other node using Dijkstra's algorithm, when A-C, increases, what happens? 1 3 2,3,6 3,4



(A) A will update A-C in its routing (B) B will have no effect in its routing table
(C) C will update its path C-B-A to A (D) D will update its path D-E-C-A to A

22. Find the incorrect statement 1 3 2,3,6 3

(A) Count to infinity is not possible in distance vector routing protocol (B) Count to infinity might occur when any link error occurs in distance vector
(C) Count to infinity is possible when no link error occurs in distance vector (D) Distance vector can be enhanced with path vector without count to infinity

23. What happens when router 'A' receives A packet with destination address 'B'? 1 3 2,6,3 3

(A) A look up algorithm in 'A's routing table is executed (B) 'A' will stand routing advertisement to its neighbors for searching 'B'
(C) 'A' discards 'B' from routing table (D) 'A' calculates best path to 'B'

24. Which of the following destination best suits for network – specific forwarding? 1 3 2,3,6 3

(A) 1.1.1.1 (B) 255.255.255.255
(C) 10.0.0.1 (D) 10.0.0.0

25. Point-to-point, transient, stub and virtual links are related to — 1 | 3 | 2,3,6 | 3

(A) Routing information protocol (B) Border gateway protocol
(C) Enhanced interior gateway routing protocol (D) Open shortest path first routing protocol

PART – B (5 × 10 = 50 Marks) — Marks | BL | CO | PO

Answer **ALL** Questions

26. a.i. Write notes on Ukrain – Russia war's relationship with the evaluation of prototype for computer networks. — 5 | 2 | 1,2 | 1,2

ii. What led to the development of reference model for computer communication? Name two reference models and their components. — 5 | 2 | 1,2 | 1,2

(OR)

b.i. Draw a neat sketch of taxonomy of flow control protocols. — 5 | 2 | 1,2 | 1,2

ii. Explain the flow control protocol that utilizes a window of sequences. — 5 | 2 | 1,2 | 1,2

27. a. Pool of IP addresses from the block of 172.16.06. has to be shared by the computer labs of SoC, SoEE, SoME and SoARCH. Each lab has 30 terminals. Requirements of schools are as follows:

So C_1 – 30 Labs
So C_2 – 25 Labs
So C_3 – 25 Labs
So C_4 – 20 Labs
So EE – 20 Labs
So ME – 10 Labs
So Arch – 25 Labs

Subnet the given block and write the result in the following table format.

School	No. of required host	Network address	IP range	Broadcast range	Subnet mask
So C_1					
So C_2					
So C_3					
So C_4					
So EE					
So ME					
So Arch					

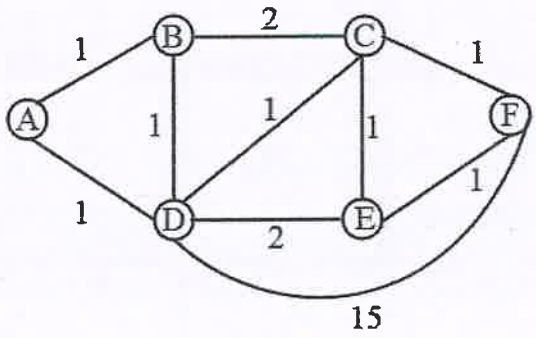
(OR)

b. An organization is granted a block of 192.168.10.0. The network administrator wants to create subnets as follows: — 10 | 3 | 2,3 | 2,3,4

(i) 2 subnets with 64 addresses
(ii) 2 subnets with 32 addresses
(iii) 2 subnets with 16 addresses
(iv) 2 subnets with 4 addresses

Find the subnet mask, network address, broadcast address, host range for each subnet.

28. a.i.	Draw the comparison chart of physical parameters for various transmission medium.	5	3	3,4, 5	2,3 ,4
ii.	Explain about twisted pair cables and their physical properties.	5	3	3,4, 5	2,3 ,4
	(OR)				
b.	What is the necessity for multiplexing? Discuss in detail about the multiplexing types.	10	3	2,3, 4,5	2,3 ,4
29. a.	Generate the codeword for the original data 1011101 using hamming code. Discuss the procedure involved.	10	3	-3,2, 5	2,3 ,4
	(OR)				
b.	Discuss the methods to handle and avoid collision with carrier sense multiple access protocol.	10	3	3,4, 5	2,3 ,4
30. a.	Write the procedure for Dijkstra's algorithm and construct the routing table with source node as 'A' and find the minimum cost path.	10	3	2,3, 6	2,3 ,4



	(OR)				
b.	Explain the message formats and operation of open shortest path first routing protocol.	10	3	2,3, 6	2,3 ,4

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