b.i.	For N devices in a network, what is the number of cable links required for a mesh, ring, bus and start topology and I/O port required for mesh and star topology?	5	3	1	1
ii.	For each of the following four networks. Discuss the consequences if a connection fails. (1) Five devices arranged in a mesh topology (2) Five devices arranged in a star topology (not counting the hub) (3) Five devices arranged in a bus topology (4) Five devices arranged in a ring topology	5	4	1	1
27. a.	Demonstrate how frame order and flow control is achieved using the data link layer.	10	2	2	4
	(OR)				
b.i.	Given the data word 1010011010 and divisor 10111. Show the generation of the code word at the sender side and show the checking of the code word at the receiver side.	5	3	2	4
ii.	Explain steps involved in sender and receiver side in checksum.	5	2	2	4
28. a.	Describe in detail about ICMP and its significance.	10	1	3	1
	(OR)				
b.i.	Find the class of following IP addresses (1) 00000001 00001011 00001011 11101111 (2) 11000001 10000011 00011011 11111111 (3) 14.23.120.8 (4) 252.15.5.111 (5) 130.34.54.12	5	3	3	1
ii.	Explain BOOTP in detail.	5	2	3	1
29. a.	Illustrate the principles of flow control in TCP.	10	3	4	1
	(OR)				
b.	Describe the following (i) DEC bit (ii) Random early detection (RED)	10	2	4	1
30. a.	Discuss in detail about HTTP operation.	10	2	5	1
	(OR)				
b.	Explain the following (i) Bluetooth (ii) Firewall	10	2	5	1

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Reg. No.														

B.Tech. DEGREE EXAMINATION, NOVEMBER 2022
Sixth/ Seventh Semester

18CSC363J – COMPUTER 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.	If there are N signal sources of same data rate then the TDM link has _____ slots. (A) N (B) N/2 (C) N * 2 (D) 2N	1	1	1	1
2.	Which of the following is not the fundamental characteristics of data communication? (A) Jitter (B) Timelines (C) Accuracy (D) Redundancy	1	1	1	1
3.	Which one of the following event is not possible in wireless LAN? (A) Collision detection (B) Acknowledgement of data frames (C) Multi-mode data transmission (D) Connection to wired networks	1	2	1	1
4.	The main purpose of twisting the cable in twisted pair is _____. (A) Balance the noise (B) Cover more distance (C) Avoid refraction (D) Avoid reflection	1	2	1	1
5.	The spread spectrum expands the required bandwidth for each station from B to Bss by adding _____. (A) Noise (B) Spreading code (C) k-bit pattern (D) Frequency	1	3	1	1
6.	The data link layer takes the packets from _____ and encapsulates them into frames for transmission. (A) Network layer (B) Physical layer (C) Transport layer (D) Application layer	1	1	2	4
7.	Which sublayer of the data link layer performs data link functions that depend upon the type of medium? (A) Logical link control sublayer (B) Media access control sublayer (C) Network interface control sublayer (D) Error control sublayer	1	2	2	4

8. When two or more bits in a data unit has been changed during the transmission, the error is called _____. 1 1 2 4
   (A) Random error (B) Burst error
   (C) Inverted error (D) Double error

9. Which of the following is the multiple access protocol for channel access control? 1 2 2 4
   (A) CSMA/CD (B) CSMA/CA
   (C) CSMA/CD and CSMA/CA (D) HDLC

10. Automatic repeat request error management mechanism is provided by _____. 1 3 2 4
   (A) Logic link control sublayer (B) Media access control sublayer
   (C) Network interface control sublayer (D) Application access control sublayer

11. The network layer is concerned with _____ of data. 1 1 3 1
   (A) Bits (B) Frames
   (C) Packets (D) Bytes

12. The IP network 192.168.50.0 is to be divided into 10 equal sized subnets. Which of the following subnet masks can be used for the above requirements? 1 3 3 1
   (A) 255.243.240.0 (B) 255.255.0.0
   (C) 255.255.255.0 (D) 255.255.255.255

13. ICMP is primarily used for _____. 1 1 3 1
   (A) Error and diagnostic functions (B) Addressing
   (C) Forwarding (D) Routing

14. The open shortest path first (OSPF) protocol is an intra-domain routing protocol based on _____ routing. 1 1 3 1
   (A) Distance vector (B) Link state
   (C) Path vector (D) Non distance vector

15. The RIP protocol cannot have more than 15 hops if infinity is defined as 1 2 3 1
   (A) 13 (B) 14
   (C) 15 (D) 16

16. An end point of an inter-process communication flow across a computer network is called 1 2 4 1
   (A) Socket (B) Pipe
   (C) Port (D) Machine

17. User datagram protocol is called connectionless because _____. 1 1 4 1
   (A) All UDP packets are treated independently by transport layer (B) It sends data as a stream of related packets
   (C) It is received in the same order as sent order (D) It sends data very quickly

18. What is the purpose of the PSH flag in the TCP header? 1 2 4 1
   (A) Typically used to indicate end of message (B) Typically used to indicate beginning of message
   (C) Typically used to push the message (D) Typically used to indicate stop the message

19. Unlike TCP, this alternative method of data exchange does not provide the service of dividing a message into packets and reassembling it at the other end, but instead relies on the application program to make sure that the entire message has arrived and is in the right order. 1 3 4 1
   (A) SMTP (B) UDP
   (C) DHCP (D) ARP

20. In the slow start phase of the TCP congestion control algorithm, the size of the congestion window 1 2 4 1
   (A) Does not increase (B) Increases linearly
   (C) Increases quadratically (D) Increases exponentially

21. Electronic mail uses this application layer protocol 1 3 5 1
   (A) SMTP (B) HTTP
   (C) FTP (D) SIP

22. The packet of information at the application layer is called _____. 1 1 5 1
   (A) Data (B) Message
   (C) Segment (D) Frame

23. Which one of following statement is not correct about HTTP cookies? 1 2 5 1
   (A) A cookies is a piece of code that has the potential to compromise the security of an internet user (B) A cookie gains entry to the user's work area through an HTTP header
   (C) A cookie has an expiry data and time (D) Cookies can be used to track the browsing pattern of a user at a particular site

24. Network layer firewall works as a _____. 1 1 5 1
   (A) Frame filter (B) Packet filter
   (C) Content filter (D) Virus filter

25. There are _____ major ways of stealing email information 1 2 5 1
   (A) 2 (B) 3
   (C) 4 (D) 5

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

26. a. Explain in detail about OSI layer model with neat diagram. 10 2 1 1

(OR)