Reg. No.															

B.Tech. DEGREE EXAMINATION, NOVEMBER 2023

Sixth Semester

18CSC363J – COMPUTER NETWORKS

(For the candidates admitted from the academic year 2020-2021 & 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)

Answer **ALL** Questions

	Marks	BL	CO	PO

1. The purpose of twisting the cable in twisted pair is _____. 1 1 1 1
   (A) Balance the noise (B) Cover more distance
   (C) Avoid refraction (D) Avoid reflection

2. Which of the following is not the fundamental characteristics of data communication? 1 1 1 1
   (A) Jitter (B) Timelines
   (C) Accuracy (D) Redundancy

3. In the ring topology if there are 6 computers connected in a Ring, then how many cables and ports are required? 1 2 1 1
   (A) 2, 8 (B) 4, 7
   (C) 3, 5 (D) 6, 12

4. Which of the following device that modulates between digital signals to analog signals that can be transmitted over traditional telephone lines? 1 2 1 1
   (A) Bridge (B) Hub
   (C) Switch (D) Modem

5. Error detection at the data link layer is achieved by _____. 1 1 2 1
   (A) Bit stuffing (B) Cyclic redundancy codes
   (C) Hamming code (D) Equalization

6. Under mark parity, each parity bit is _____. 1 2 2 1
   (A) Alternated between 0 and 1 (B) Always set to 0
   (C) Always set to 1 (D) Always set to –1

7. The data link layer takes the packets from _____ and encapsulates them into frames for transmission. 1 1 2 1
   (A) Network layer (B) Physical layer
   (C) Transport layer (D) Application layer

8. Which sublayer of the data link layer performs data link functions that depend upon the type of medium? 1 2 2 1

(A) Logical link control sublayer (B) Media access control sublayer
(C) Network interface control sublayer (D) Physical link control sublayer

9. What network utility uses the Time to Live (TTL) field in the IP header to elicit ICMP error messages 1 2 3 1

(A) Ping (B) Route
(C) Trace route (D) inconfig

10. During normal IP packet forwarding by a router, which of the following fields of the IP header is updated? 1 1 3 1

(A) Repeater (B) Source address
(C) Destination address (D) Checksum

11. In transmission control protocol (TCP) when a segment carries a combination of data and control information, it uses a _____. 1 1 3 1

(A) Port number (B) Sequence number
(C) Slot number (D) Source number

12. An end point of an inter-process communication flow across a computer network is called _____. 1 1 3 1

(A) Socket (B) Pipe
(C) Port (D) Machine

13. Beyond IP, UDP provides additional services such as _____. 1 2 4 1

(A) Routing and switching (B) Sending and receiving of packets
(C) Multiplexing and demultiplexing (D) Demultiplexing and error checking

14. What is the main advantage of UDP? 1 2 4 1

(A) More overload (B) Reliable
(C) Low overhead (D) Fast

15. TCP process may not write and read data at the same speed. So we need _____ for storage. 1 1 4 1

(A) Packets (B) Buffers
(C) Segments (D) Stacks

16. In segment header, sequence number and acknowledgement number field refer to _____. 1 1 4 1

(A) Byte number (B) Buffer number
(C) Segment number (D) Acknowledgement

17. In quality of service (QoS) techniques, packet wait in a buffer (queue) until the node is ready to process them in _____. 1 2 5 1

(A) Out of order one (B) First in first out
(C) Last in first out (D) First in last out

18.	All telnet operation are sent as _____. (A) 4 bits (B) 8 bits (C) 16 bits (D) 32 bits	1	2	5	1
19.	FTP is built on _____ architecture. (A) Client-server (B) P2P (C) Data centric (D) Service oriented	1	2	5	1
20.	If 5 files are transferred from server A to client B in the same session. The number of TCP connections between A and B is _____. (A) 5 (B) 10 (C) 2 (D) 6	1	1	5	1

PART – B (5 × 4 = 20 Marks)
Answer **ANY FIVE** Questions

		Marks	BL	CO	PO
21.	State the major functions performed by the presentation layer of the OSI model.	4	2	1	1
22.	State the uses of two dimensional parity in error detection?	4	1	2	1
23.	What are the ways to address the framing problem?	4	2	3	1
24.	What are the responsibilities of transport layer?	4	2	4	1
25.	What is Error Detection? How does it operate?	4	2	4	4
26.	List the range of addresses included in the categories of internet addresses?	4	2	4	4
27.	How does MIME enhance SMTP?	4	3	5	1

PART – C (5 × 12 = 60 Marks)
Answer **ALL** Questions

		Marks	BL	CO	PO
28. a.	A company is considering different transmission media solutions for their office. They need to decide what type of media would be most suitable for their needs. Compare and contrast the use of copper wire, fiber optic cable and wireless transmission media and suggest which one would be the most appropriate for their office.	12	4	1	4
	(OR)				
b.	Explain the following (i) LAN (ii) MAN (iii)WAN (iv) ARPANET	12	3	1	1
29. a.	Host A wants to send 10 frames to host B. The hosts agreed to go with Selective Repeat ARQ. How many number of frames are transmitted by host A if every 6th frame that is transmitted by host A is either corrupted or lost? Also compare the number of transmissions of selective repeat (SR) ARQ with Go-Back-4 ARQ.	12	2	2	2
	(OR)				

b.i.	The data rate of 10 base 5 is 10 Mbps. How long does it take to create the smallest frame? Show the calculation.	6	3	2	2
ii.	Determine the maximum length of the cable (in km) for transmitting data at a rate of 500 Mbps in an Ethernet LAN with frames of size 10,000 bits. Assume the signal speed in the cable to be 2,00,000 km/s.	6	3	2	2
30. a.	An internet service provider (ISP) has the chunk of CIDR-based IP addresses available with it: 245.248.128.01.20. The ISP wants to give half of this chunk of addresses to organization A, and a quarter to organization B, while retaining, the remaining with itself. What are the steps to be followed in allocation and give the valid allocation of addresses to A and B?	12	4	3	2
	(OR)				
b.	Define routing and explain distance vector routing and link state routing.	12	3	3	1
31. a.	Explain the principles of congestion control in TCP.	12	2	4	1
	(OR)				
b.	Explain about leaky bucket and token bucket algorithms.	12	2	4	1
32. a.	Explain the functions of SMTP.	12	2	5	1
	(OR)				
b.i.	Explain Telnet in detail.	6	2	5	1
ii.	Illustrate the role of POP 3 in electronic main application.	6	4	5	1

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