Enroll. No._____

MARWADI UNIVERSITY

Faculty of Engineering Technology

Information and Communication Technology **BTech**

SEM: 5 **MU FINAL EXAM** **DECEMBER:2023**

Subject: - Computer Networks 01CT0503 **Date:- 12/12/2023**

Total Marks:-100 **Time: - 3 Hours**

Instructions:

1. **All Questions are Compulsory.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Do not write/sign/indication/tick mark anything other than Enroll No. at a specific place on the question paper.**

Question: 1.

(a) Objective MCQ (No. of Questions 10) [10]

i. Which is not an application layer protocol?
   a) HTTP
   b) SMTP
   c) FTP
   d) TCP

ii. Which one of the following layers is an additional layer in the OSI Reference model when compared with TCP IP model?
   a) Application layer
   b) Presentation layer
   c) Session layer
   d) Session and Presentation layer

iii. In computer network nodes are:
   a) the computer that originates the data
   b) the computer that routes the data
   c) the computer that terminates the data
   d) all of the mentioned

iv. Transport layer aggregates data from different applications into a single stream before passing it to _____
   a) network layer
   b) data link layer
   c) application layer
   d) physical layer

v. Transmission control protocol _____
   a) is a connection-oriented protocol
   b) uses a three-way handshake to establish a connection
   c) receives data from application as a single stream
   d) all of the mentioned
   e)

vi. Which transmission media provides the highest transmission speed in a network?
   a) coaxial cable
   b) twisted pair cable
   c) fiber optic cable
   d) electric cable

vii. Hub works at which layer?
   a) Physical
   b) Data Link

c) Network
d) Transport

viii. Hardware address is known as _____
a) MAC address
b) IP Address
c) Connection Address
d) Address Resolution Protocol

ix. Which one of the following uses UDP as the transport protocol?
a) HTTP
b) TELNET
c) DNS
d) SMTP

x. Assume that you have made a request for a web page through your web browser to a web server. Initially the browser cache is empty. Further, the browser is configured to send HTTP requests in non-persistent mode. The web page contains text and five very small images. The minimum number of TCP connections required to display the web page completely in your browser is _____.
a) 1
b) 5
c) 6
d) 18

(b) Short Que. (answer in one sentence: No. of Questions 10) [10]

i. What is piggy backing?

ii. Define throughput

iii. What is the need of port numbers?

iv. Define Socket address

v. Define Routing

vi. Define Payload

vii. Define Segmentation

viii. Define Acknowledgement

ix. Name any 4-port number and what are they used for

x. Number of IP addresses and Hosts Possible in Class B IP Address

Question: 2.

(a) What is OSI Model? Explain the functions of each layer? [08]

(b) Write a note on HTTP. Also write its advantage and disadvantage [08]

OR

(b) Write a note on SMTP. Also Explain the function of SMTP. [08]

Question: 3.

(a) Write a note on DNS. Also write its advantage and disadvantage [08]

(b) What are the applications of computer network? [04]

(c)	Write short notes on circuit switching and packet switching	[04]

OR

(a)	Write a note on FTP. Also write its advantage and disadvantage	[08]
(b)	If a file consisting of 100,000 characters takes 40 seconds to send, then the data rate is _____	[04]
(c)	What is congestion? Discuss the approaches to congestion control	[04]

Question: 4.

(a)	Explain why is UDP used for multimedia applications instead of TCP	[08]
(b)	Explain Segmentation in TCP	[08]

OR

(a)	Explain Three-Ways-Handshaking in TCP	[08]
(b)	Explain Congestion control protocol in TCP	[08]

Question: 5.

(a)	Explain Distance Vector Routing	[06]
(b)	What is the Count To Infinity Problem	[06]
(c)	Please suggest the solution to Count to Infinity Problem	[04]

OR

(a)	Explain Link State Routing	[06]
(b)	What are the advantages of using Link State Routing	[06]
(c)	What is DHCP and how does it works	[04]

Question: 6.

(a)	What is ARP and RARP? Explain the usage of both	[08]
(b)	What is a MAC Address	[04]
(c)	State and explain any 4 Flags from IPv4 Header	[04]

OR

(a) What is Fragmentation. Explain how scaling factor can be used to store large fragment number into small field size [08]

(b) Explain Time to Live field in IPv4 [04]

(c) What is Header Checksum. Explain with an Example [04]

---Best of Luck---

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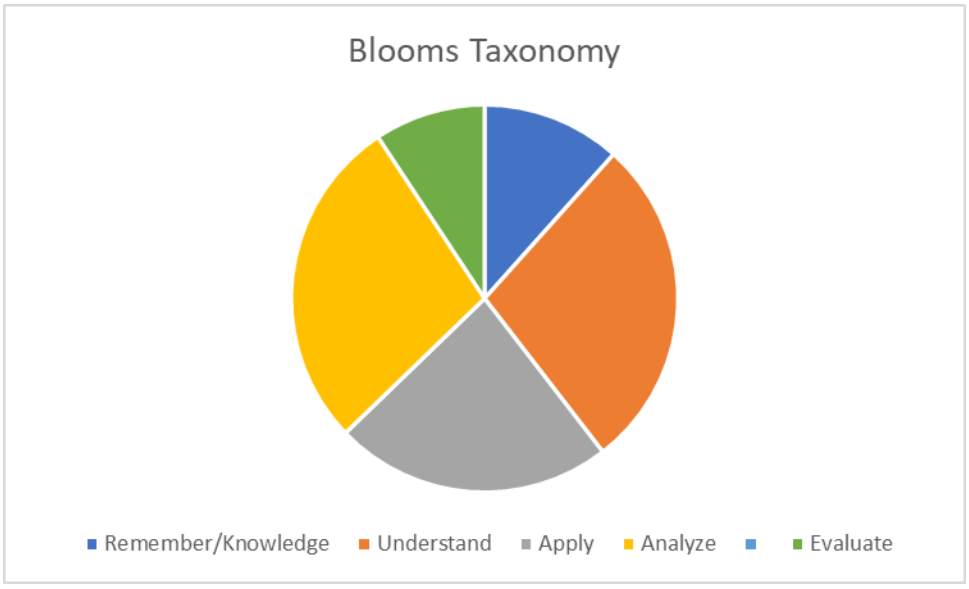
– Bloom'S Taxonomy Report –

Sub: Computer Networks
Sem. 5
Branch: Information and CommunicationTechnology

Que. Paper weightage as per Bloom's Taxonomy

LEVEL	% of weightage	Question No.	Marks of Que.
Remember/Knowledge	11.62790698	1	20
Understand	27.90697674	2, 3(a),6(a)6(a)	48
Apply	23.25581395	3(b),3(c),3(a), 4(a)4(b),6(b),6(b)	40
Analyze	27.90697674	3(b),3(c),4(a),4(b),5{a,b}5{a,b}6	48
Evaluate	9.302325581	5(c), 5(c),6(c),6(c)	16
Higher order Thinking/ Creative			0

Chart/Graph of Bloom's Taxonomy



Course Outcome Wise Questions

Subject Code	**01CT0503**	Subject	**COMPUTER NETWORKS**

CO No.	Course Outcome
CO1	Understand the functionality of various protocols, models and networks.
	1(A), 1(B), 2(A), 2(B), 2(B-Or)
CO2	Analyze various flow and error control algorithms
	3(A)
CO3	Analyze different medium access protocols and network hardware component.
	3(A-Or), 3(B), 3(B-Or), 3(C), 3(C-Or), 4(A), 4(A-Or), 4(B), 4(B-Or), 6(C)
CO4	compare various static and dynamic routing protocol.
	5(A), 5(A-Or), 5(B), 5(B-Or), 5(C), 5(C-Or), 6(A-Or)
CO5	Understand various transport services, protocol and application layer functionalities.
	6(A), 6(B-Or), 6(C-Or)
CO6	Built and test various network topologies and routing protocols for various networks scenarios.
	6(B)

Blooms Taxonomy	Question List
Remember / Knowledge	1(A), 1(B), 6(A), 6(A-Or)
Understand	2(A), 2(B), 2(B-Or)
Apply	3(A), 3(A-Or), 3(B), 3(C), 4(A-Or), 4(B-Or), 6(B), 6(B-Or)
Analyze	3(B-Or), 3(C-Or), 4(A), 4(B), 5(A), 5(A-Or), 5(B), 5(B-Or)
Evaluate	5(C), 5(C-Or), 6(C), 6(C-Or)
Higher order Thinking / Creative	