Enroll. No._____

MARWADI UNIVERSITY

Faculty of Technology

Information and Communication Technology

Bachelor of Technology **SEM: 5th** **MID-SEM. EXAM: I**

September: 2022

Subject: - (Computer Networks) (01CT0503) **Date:-**

Total Marks:-30 **Time: - 75 Minutes**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q. 1 Answer the following. **[6]**

(a) Define Defragmentation process.

(b) At which layer router works?

(c) How many bits of errors can be detected in Hamming code if minimum hamming distance is 4?

(d) How many bits of errors can be corrected in Hamming code if minimum hamming distance is 4?

(e) What is burst error?

(f) How many bits will be there in code words if 4 bits of data words are there in CRC system?

Q. 2 Answer the following. **[12]**

(a) The periodic signal is decomposed into five sine waves with frequencies of 100, 300, 400, 600, and 700 Hz. Calculate the bandwidth and draw the spectrum. Assume all components have a maximum amplitude of 10 V. **[6]**

(b) Following code words are mapped with respective data words. How many bits of errors can be corrected with the below mentioned Hamming code? **[6]**

Data Block	Codeword
00	00000
01	00111
10	11001
11	11110

Receiver receives 10110. Which data work receiver will understand?

OR

(b) Apply bit stuffing and destuffing on below given frame. **[6]**

01111110 10111111111110010101111110 **01111110**

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Q. 3 Answer the following. **[12]**

(a) Explain two-dimension parity check code. How many numbers of bit error can be detected using two-dimension parity check code? **[8]**

(b) Calculate the required bandwidth of a low-pass channel if we need to send 5 Mbps by using baseband transmission. **[4]**

OR

(a) Explain framing by character count using an example. **[8]**

(b) We have a low-pass channel with bandwidth 400 kHz. Calculate the maximum bit rate of this channel. **[4]**

---Best of Luck---

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), 2(A), 3(B), 3(B-Or)
CO2	Analyze various flow and error control algorithms
	1(A), 2(B), 2(B-Or), 3(A), 3(A-Or)
CO3	Analyze different medium access protocols and network hardware component.
CO4	compare various static and dynamic routing protocol.
CO5	Understand various transport services, protocol and application layer functionalities.
CO6	Built and test various network topologies and routing protocols for various networks scenarios.

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