|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **RV COLLEGE OF ENGINEERING®**  **Department of Computer Science and Engineering**  **CIE-I : Question Paper** | | | | | |
| **Course :**  **(Code)** | **COMPUTER NETWORKS (CY245AT))** | | | | **Semester : IV** | |
| **Date : Apr 2025** | | **Duration :** 120 minutes | | **Staff : CSE/ISE/AI-ML** | | |
| **Name :** | | **USN** : | **Section :** | | | **CSE/ISE/AI-ML** |

**Answer all questions**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sl.no** | **Questions** | **Marks** | **L1-L6** | **CO** |
| 1 | Total header size=4×6=24 bytes  Total transmitted size=Message size+Total header size =15+24=39 bytes  The fraction of the total bandwidth used for headers is:23/39= 0.6154≈61.54% | 2 | 3 | 3 |
| 2 | Total bits per second=8×2,000,000 = 16,000,000 bits per second  Total bytes per second=160,000,000/8=2,000,000 bytes per second | 2 | 3 | 3 |
| 3 | The final frame length after byte stuffing is **27 bytes**. | 2 | 4 | 5 |
| 4 | 1. Application Layer ii. Network Layer | 2 | 3 | 3 |
| 5 | Total Delay=Setup Time+Data Transfer Time =50+200=250 ms  Average Delay per Packet=/Total Delay​/ Number of Packets=250/5=50ms | 2 | 4 | 4 |

**Part B**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sl.no** | **Questions** | **Marks** | **L1-L6** | **CO** |
| 1. | Diagram 4M, Function of Each Layer 4M, ENCAPSULATION Concept: 2M | 10 | L2 | CO1 |
| 2 a. | **Features: 2M, Trasition Diagram: 4M** | 6 | L2 | CO2 |
| b. | **Identify type of frame and meaning of following HDLC transmission:**  **U-Frame Connection Setup** | 04 | L4 | CO4 |
| 3 a.  b. | Any 6Differnces 6\*1 | 6 | L2 | CO2 |
| Buffer-Verify Checksum –Forward: 2m Diagram:2M | 4 | L2 | CO1 |
| 4 a, | Identify the type of address for following addresses”   1. Special Address 2. Special Address 3. IP Address 4. MAC Address | 4 | L4 | CO5 |
| b. | **Parallel Transmission** and **Serial Transmission: Definition 2M**  Advantages and disadvantages in different network applications:4M | 6 | L1 | CO1 |
| 5 a. | **CSMA/CD** and **CSMA/CA** mechanisms.: 8M scenario where **CSMA/CD** fails and **CSMA/CA** becomes essential: Wireles network: 2M | 10 | L1 | CO1 |

CO1 Apply the algorithms/techniques of routing and congestion control to solve problems related to

Computer Networks.

CO2 Analyse the services provided by various layers of TCP/IP model to build effective solutions.

CO3 Design sustainable networking solutions with societal and environmental concerns by engaging in

lifelonglearning for emerging technology.

CO4 Exhibit network configuration, protocol usage and performance evaluation in networks.

CO5 Demonstrate the solutions using various algorithms/protocols available to address networking issues using modern tools by exhibiting team work and effective communication.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | L1 | L2 | L3 | L4 | L5 | L6 | CO1 | CO2 | CO3 | CO4 | CO5 |
| Marks | 16 | 26 | 6 | 12 | - | - | 16 | 26 | 6 | 8 | 4 |