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**Presidency University**

**Bengaluru**

 **School Of Computer Science and Engineering & Information Science**

**Summer Term End-Term Examinations, Aug 2024**

**Date**: 12/8/2024

**Time**: 9:30AM to 12:30 PM

**Max Marks**: 100

**Weightage**: 50%

**Odd Semester**: 2023 - 24

**Course Code**: CSE2011

**Course Name**: Data Communication and Computer N/W

**Department: CSE/CSE Allied**

 **Instructions:**

1. *Read the all questions carefully and answer accordingly.*
2. *Do not write any matter on the question paper other than roll number.*

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| **Q.No** | **Questions** | **Marks** | **CO** | **RBT** |
| 1 | 1. Compare OSI and TCP/IP architecture.
 | 4 | CO1 | L1 |
| 1. Draw the structure of TCP header structure.
 | 6 | CO1 | L2 |
| 1. What are the types of top level domain in DNS? Define with Example
 | 10 | CO1 | L3 |
| OR |
| 2 | 1. Name any two protocols in Application and Transport layer
 | 4 | CO1 | L1 |
| 1. Explain the structure of TCP/IP model
 | 6 | CO1 | L2 |
| 1. Explain any 5 Network topologies with neat diagram and mention their advantages, disadvantages and possible applications
 | 10 | CO1 | L3 |

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| 3 | 1. List all the HTTP request message.
 | 4 | CO2 | L1 |
| 1. Draw the UDP segment structure and explain.
 | 6 | CO2 | L2 |
| 1. Illustrate Selective repeat ARQ with neat diagram.
 | 10 | CO2 | L3 |

OR

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| 4 | 1. Differentiate between persistent HTTP and non-persistent HTTP
 | 4 | CO2 | L1 |
| 1. Demonstrate iterative DNS approach.
 | 6 | CO2 | L2 |
| 1. Illustrate with three scenarios a)normal operation b)ack loss c)packet loss using Stop-Wait ARQ protocol and specify its drawback and which method is used to overcome it
 | 10 | CO2 | L3 |

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| 5 | 1. ***Find the class of each address.****a.* 00000001 00001011 00001011 11101111*b.* 11000001 10000011 00011011 11111111*c.* 14.23.120.8*d.* 252.5.15.111
 | 4 | CO3 | L1 |
| 1. Explain the IP address classification.
 | 6 | CO3 | L2 |
| 1. You are the network administrator for Presidency University, which requires 50 separate networks. The university has been assigned the IP address 160.16.0.0. Determine the network address, first host ID, and broadcast address for the first three networks
 | 10 | CO3 | L3 |

OR

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| 6 | 1. List the rules to validate CIDR address block
 | 4 | CO3 | L1 |
| 1. Differentiate between RIP and OSPF routing protocol
 | 6 | CO3 | L2 |
| 1. Draw IPv4 header and explain all the fields in detail
 | 10 | CO3 | L3 |

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| 7 | 1. List the services of Datalink layer.
 | 4 | CO4 | L1 |
| 1. Differentiate between static routing and dynamic routing
 | 6 | CO4 | L2 |
| 1. Sender want to transmit the message 11100011 and protect it from errors using the CRC polynomial 1001.

 i. Use polynomial long division to determine the message that should be transmitted.ii. Suppose the 5th bit of the message is inverted due to noise on the transmission link. What is the result of the receiver's CRC calculation? How does the receiver know that an error has occurred? | 10 | CO4 | L3 |

OR

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| 8 | 1. What is error? List different types of error.
 | 4 | CO4 | L1 |
| 1. What are the causes of Transmission Impairment
 | 6 | CO4 | L2 |
| 1. Given a remainder of 111, a data unit of 10110011 and a divisor of 1001, is there an error in the data unit. Justify your answer with necessary principles.
 | 10 | CO4 | L3 |

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| 9 | 1. Data communications are the exchange of data between two devices via some form of transmission medium. Explain briefly about its characteristics.
 | 4 | CO1 | L1 |
| 1. Differentiate between WAN and LAN
 | 6 | CO2 | L2 |
| 1. Explain data flow and components of data communication
 | 10 | CO2 | L3 |

OR

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| 10 | 1. Explain the IPV4 address representation.
 | 4 | CO2 | L1 |
| 1. Explain the IPv4 datagram format
 | 6 | CO2 | L2 |
| 1. You have been given the IP address 192.168.1.50 with a CIDR notation of /26. Determine the range of IP addresses within this CIDR block, including the network address, first usable IP address, last usable IP address, and the broadcast address
 | 10 | CO2 | L3 |