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|---|-------|
| 12.a. Discuss the concepts of framing in the Data Link Layer<br>(Or)                | CO2K2 |
| 12.b. Describe the working of the Simplex Stop-and-Wait Protocol.                   | CO2K4 |
| 13.a. Write short notes on channel allocation in networking and its types.<br>(Or)  | CO3K2 |
| 13.b. Describe the role of the MAC sublayer and its protocols in data transmission. | CO3K3 |
| 14.a. Compare Connection-Oriented and Connectionless Service.<br>(Or)               | CO4K2 |
| 14.b. Explain the concepts of Distance Vector Routing in network communication.     | CO4K1 |
| 15.a. Outline the functions of transport layer protocols.<br>(Or)                   | CO5K2 |
| 15.b. Summarize the features and working principles of User Datagram Protocol.      | CO5K3 |

**Part C**

**Answer the following**

**5X12=60**

**Answer should not exceed 800 words or four pages**

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|---|-------|
| 16.a. Explain the OSI reference model with a neat diagram and detailed description of each layer.<br>(Or) | CO1K2 |
| 16.b. Illustrate the architecture and functions of the TCP/IP model with a labeled diagram.               | CO1K3 |
| 17.a. Analyze the working of Sliding Window Protocols with their advantages and limitations.<br>(Or)      | CO2K2 |
| 17.b. Describe about error detection and their role in reliable communication.                            | CO2K4 |
| 18.a. Provide a comprehensive explanation of wireless LANs.<br>(Or)                                       | CO3K2 |
| 18.b. Discuss Ethernet technology and its types.  | CO3K3 |
| 19.a. Demonstrate the Shortest Path Algorithm with an example and its applications.<br>(Or)               | CO4K4 |
| 19.b. Define IP addressing and discuss its different classifications in networking.                       | CO4K3 |
| 20.a. Discuss in-depth the working of the Transmission Control Protocol.<br>(Or)                          | CO5K2 |
| 20.b. Describe various real-time applications in the application layers.                                  | CO5K3 |

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