

Basavarajeswari Group of Institutions

BALLARI INSTITUTE OF TECHNOLOGY & MANAGEMENT

(Autonomous Institute under Visvesvaraya Technological University, Belagavi)

2022 SCHEME

USN

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Course Code

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Eighth Semester B.E. Degree Examinations, May 2026

COMPUTER COMMUNICATION NETWORKS

Duration: 3 hrs

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. Missing data, if any, may be suitably assumed

<u>Q. No</u>	<u>Question</u>	<u>Marks</u>	<u>(RBTL:CO: PI)</u>
<u>Module-1</u>			
1.	a. Identify the components of a data communication system, discuss their role in data representation and data flow in a network.	10	(3 :1: 1.2.1)
	b. Compare the Local Area Network and Wide Area Network to explain their characteristics and uses in real-world communication systems with suitable examples.	10	(3:1: 1.2.1)
(OR)			
2.	a. With a neat diagram, illustrate encapsulation and decapsulation process in TCP/IP.	10	(2 :1: 1.2.1)
	b. Compare OSI and TCP/IP models and highlighting their differences in a given scenario.	10	(3 :1: 1.2.1)
<u>Module-2</u>			
3.	a. With a neat diagram, outline the link layer addressing and the working of ARP in a network.	10	(2 :2: 1.2.1)
	b. Sketch the diagram of the Stop and Wait protocol and describe the working principle.	10	(2 :2: 1.2.1)
(OR)			
4.	a. Apply the concept of flow control and error control in Data Link Layer to show reliable data transmission in a communication system.	10	(2 :2: 1.2.1)
	b. Compare the working of ALOHA, CSMA/CD, and CSMA/CA protocols with suitable scenarios.	10	(3 :2: 1.2.1)
<u>Module-3</u>			
5.	a. Explain IPv4 addressing scheme to assign addresses for a given network.	10	(2 :3: 1.2.1)
	b. With a neat diagram, illustrate forwarding of IP packets based on destination address.	10	(2 :3 1.2.1)

(OR)

Note: (RBTL - Revised Bloom's Taxonomy Level: CO - Course Outcome: PI- Performance Indicator)

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| 6. | a. | With a neat diagram, apply Distance Vector Routing algorithm to determine shortest path. | 10 | (3 :3: 1.2.1) |
| | b. | Compare Link State and Path Vector routing algorithms with suitable examples. | 10 | (3 :3: 1.2.1) |

Module-4

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| 7. | a. | With a neat diagram, Outline the principle of the Go-Back-N protocol in data transmission. | 10 | (2 :4: 1.2.1) |
| | b. | Show TCP segment structure and connection establishment with a neat diagram. | 10 | (2:4: 1.2.1) |

(OR)

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| 8. | a. | Describe the UDP operation and justify its use in real-time applications. | 10 | (2 :4: 1.2.1) |
| | b. | Compare connection-oriented and connectionless communication with suitable scenarios. | 10 | (3 :4: 1.2.1) |

Module-5

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| 9. | a. | Outline application layer services and application-layer paradigms in network communication. | 10 | (2 :5: 1.2.1) |
| | b. | Describe the operation of FTP by distinguishing the roles of control and data connections during file transfer. | 10 | (2 :5: 1.2.1) |

(OR)

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| 10. | a. | With a neat diagram, analyze the effectiveness of different application layer services and paradigms for various network applications. | 10 | (2 :5: 1.2.1) |
| | b. | With a neat diagram, analyze the roles of the client and server in HTTP communication, highlighting the request–response process. | 10 | (3 :5: 1.2.1) |

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