BALLARI INSTITUTE OF TECHNOLOGY & MANAGEMENT
(Autonomous Institute under Visvesvaraya Technological University, Belagavi)

USN | | | | | | | | | | **Course Code** | 2 | 3 | M | C | A | 2 | 3 |

Second Semester MCA Degree Examinations, November 2024
COMPUTER 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

Q. No		*Question*	*Marks*	*(RBTL:CO: PI)*
		MODULE – 1		
1.	**a.**	List and explain the applications of networks.	**08**	(1:1:2.1.1)
	b.	Describe the requirements of a computer network with respect to perspectives and scalable connectivity.	**06**	(2:1:2.2.1)
	c.	Explain ISO-OSI reference model of computer network with a neat diagram.	**06**	(2:1:3.2.1)
		(OR)		
2.	**a.**	Explain the requirements needed to build a network.	**06**	(1:1:2.1.1)
	b.	Discuss the network architecture with respect to layering and protocols.	**07**	(2:1:2.2.1)
	c.	List and explain the factors that affect the performance of networks.	**07**	(2:1:2.3.1)
		MODULE – 2		
3.	**a.**	Explain the different types of links used to build a computer network.	**06**	(2:2:3.2.1)
	b.	Define frame? Explain the working of a BISYNC protocol.	**07**	(3:2:2.2.2)
	c.	Explain token ring with a neat diagram.	**07**	(2:2:2.4.2)
		(OR)		
4.	**a.**	Explain how Cyclic Redundancy Check (CRC) works.	**10**	(3:2:2.4.4)
	b.	Write a short note on go-back-n and selective repeat ARQ protocol.	**10**	(2:2:2.2.3)
		MODULE – 3		
5.	**a.**	Briefly describe datagram switching and virtual circuit switching.	**08**	(2:3:2.1.2)
	b.	Distinguish between bridge and switch.	**04**	(2:3:2.3.1)
	c.	Define routing. Explain the use of routing tables.	**08**	(1:3:2.3.1)
		(OR)		
6.	**a.**	What is a bridge? Explain the uses and limitations of a bridge in a network.	**10**	(3:3:2.3.2)
	b.	What is internetworking? Explain the IP service model.	**10**	(2:3:3.2.1)
		MODULE – 4		
7.	**a.**	What is a TCP segment? Describe any four header fields of a TCP segment in reliable byte stream protocol.	**06**	(3:4:2.2.1)
	b.	Write a short note on three-way handshake mechanism in TCP.	**06**	(2:4:2.3.1)

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

	c.	Explain Random Early Detection (RED) algorithm for congestion avoidance.	**08**	(2:4:3.2.1)

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(OR)

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8.	**a.**	Explain in detail the Additive Increase/Multiplicative Decrease (AIMD) algorithm in congestion control mechanism.	**10**	(2:4:2.3.2)
	b.	Discuss the source-based congestion avoidance mechanism TCP Vegas.	**10**	(2:4:2.1.2)

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MODULE – 5

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9.	**a.**	What is network security? Explain the types of network attacks.	**10**	(3:5:2.2.1)
	b.	What is a firewall? Explain the strengths and weaknesses of firewalls.	**10**	(2:5:3.2.1)

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(OR)

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10.	**a.**	Describe Simple Object Access Protocol (SOAP) in web services.	**10**	(2:5:3.2.2)
	b.	Write a note on Session Description Protocol (SDP) and Session Initiation Protocol (SIP).	**10**	(3:5:2.3.1)

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