Paper Code: BCA 210 **L T C**

Paper ID: 20210 **3 1 4**

Paper :Computer Networks

Pre-requisites: None

Aim: The aim of this course is to allow students to develop background knowledge as well as core expertise in networking technologies, which one of the fastest growing industries is in today's world.

Objectives

- The students will be exposed different types of media, multiplexing, switched networks, the Internet, TCP/IP suite, fibre-optic communications and the state-of-art networking applications.
- Various transmission media, their comparative study, fibre optics and wirelessmedia
- Categories and topologies of networks (LAN and WAN) Layered architecture (OSI and TCP/IP) and protocol suites
- Channel error detection and correction, MAC protocols, Ethernet and WLAN
- Details of IP operations in the Internet and associated routing principles

	INSTRUCTIONS TO PAPER SETTERS: **Maximum Marks : 75**
1.	Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 25 marks.
2.	Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be 12.5 marks.

Unit - I

Basic Concepts: Components of data communication, distributed processing, Line configuration, topology, transmission mode, and categories of networks. OSI and TCP/IP Models: Layers and their functions, comparison of models. Digital Transmission: Interfaces and Modems: DTE-DCE Interface, modems, cable modems. Transmission Media: Guided and unguided, Attenuation, distortion, noise, throughput, propagation speed and time, wavelength, Shannon Capacity.T[1], T[2]

Unit – II

Telephony: Multiplexing, error detection and correction: Many to one, one to many, WDM, TDM, FDM, circuit switching, packet switching and message switching. Data Link control protocols: Line discipline, flow control, error control, synchronous and asynchronous protocols overview.

ISDN: Services, historical outline, subscriber's access, ISDN, Layers, and broadband ISDN. T[1], T[2]

Unit-III

Devices: Repeaters, bridges, gateways, routers, The Network Layer, Design Issues, Network Layer Addressing and Routing concepts (Forwarding Function, Filtering Function);Routing Methods (Static and dynamic routing, Distributed routing, Hierarchical Routing);Distance Vector Protocol, Link State protocol. T[1], T[2]

Unit – IV

Transport and upper layers in OSI Model: Transport layer functions, connection management, Functions of session layers, Presentation layer, and Application layer. T[1], T[2]

Text Books

T[1]. A. S. Tenanbaum, "Computer Networks"; Pearson Education Asia, 4th Ed., 2003.
T[2]. Behrouz A. Forouzan, "Data Communication and Networking", 2nd edition, Tata Mc Graw Hill.

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Reference Books

R[1]. D. E. Comer, "Internetworking with TCP/IP", Pearson Education Asia, 2001.
R[2]. William Stallings, "Data and computer communications", Pearson education Asia, 7th Ed., 2002.