

**ADVANCED COMPUTER NETWORKS****Paper Code: ETIT-401****L T/P C****Paper: Advanced Computer Networks****3 1 4****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 of 12.5 marks

*Objective: To understand different network protocols with emphasis on TCP/IP protocol suite.*

**UNIT-I****Network Layer:**

ARP, RARP, ICMP, IPv4 Routing Principles, Routing and overview, DVR and LSR, the IGRP and EIGRP, BGP, Routing Information Protocol (RIP), OSPF (IPv4 / IPv6).

Multicasting in IP Environments-Broadcasting, Multicasting, IGMP and Multicast Listener Discovery (MLD). The Distance Vector Multicast Routing Protocol (DVMRP), Multicast OSPF (MOSPF), Protocol Independent Multicast (PIM).

**[T1][No. of Hours 10]****UNIT-II**

**Transport Layer:** Transport layer overview, UDP, TCP (Flow Control, Error Control, and Connection Establishment), TCP Protocol: TCP Tahoe, TCP Reno.

**[R1, R3][No. of Hours 10]****UNIT-III****Optical Networking:**

Introduction to Optical networking, its benefits and drawbacks, SONET layered architecture, frame format, SONET network configuration, its advantages and benefits. **Quality of Service:** Introducing QoS, Queue Analysis, QoS Mechanisms, Queue Management algorithms, Resource Reservation, Diffserv and Intserv.

**[T2] [No. of Hours 10]****UNIT-IV****Overview of latest concepts:**

**TCP/IP Applications:** VoIP, NFS, Telnet, FTP, SMTP, SNMP, Finger, Whois and WWW, IP v6 and Next Generation Networks, xAAS(PAAS, SAAS, HAAS) and Cloud Computing, Big data, Elements of Social Network.

**[R2][No. of Hours 12]****Text Books:**

[T1] Douglas E. Comer, "Internet networking with TCP/IP", Pearson. TCP/IP, Vol. 2

[T2] B. A. Forouzan, "TCP/IP Protocol Suite", TMH, 2nd Ed., 2004.

**Reference Books:**

[R1] TCP/IP Illustrated, Volume 1 (The Protocols) by W. Richard Stevens, Pearson Education.

[R2] U. Black, "Computer Networks-Protocols, Standards and Interfaces", PHI, 1996.

[R3] W. Stallings, "Computer Communication Networks", PHI, 1999.