

**T. Y. B. C. A.
BCA -305 Computer Networking**

Teaching Scheme (per week)		Examination Scheme					
Th. (hours)	Pr. (hours)	Internal		External		Total	
		Th. (marks)	Pr. (marks)	Th. (marks)	Pr. (marks)	Th. (marks)	Pr. (marks)
3	-	30	-	70	-	100	-

UNIT I (20 Marks)

Basic of Computer Networks: (10 Marks)

Networking of Computer.- Advantages and disadvantages of computer networking.

Types of Networks - LAN, MAN, WAN, Wireless

Network Topology – Star, Ring, Bus, Tree, Complete, Irregular.

Reference Models - The OSI reference model, the TCP/IP reference model.

Telephone System: (10 Marks)

Structure of telephone system, the local loops, trunks and multiplexing (FDM and TDM)

Switching - Circuit switching, message switching, Packet Switching.

UNIT II (18 Marks)

Transmission Media:

Transmission media - Magnetic media, twisted pair, co-axial cable (baseband and broadband) , fiber optics principle, transmission of light through fiber, fiber cables, fiber optics network, comparison of fiber optic and copper wire. Wireless Transmission (The electromagnetic spectrum, Radio Transmission, Microwave Transmission, Infrared and Millimeter Waves, Light wave Transmission)

UNIT III (16 Marks)

Data Communication Components: (10 Marks)

Modem, Routers, Bridges, Hubs, Switches.

Data Link Protocols: (6 Marks)

Asynchronous, Synchronous, Character Oriented and Bit Oriented Protocols.

UNIT IV (16 Marks)

IP Addressing: (6 Mark)

IP Address class, Network and Host Addressing, Subnet, Subnet Mask, Sub netting, Super netting.

TCP/IP Protocol Suite: (10 Mark)

Network Layer: IP Protocol, Address resolution Protocol (ARP), Reverse Address Resolution Protocol (RARP), Internet Control Message Protocol (ICMP), Internet Group Message Protocol (IGMP).

Transport Layer: User Datagram Protocol (UDP), Transmission Control Protocol (TCP). [Case Studies: (There is no weightage in Examination)]

Application Layer: Bootstrap Protocol (BOOTP), Dynamic Host Configuration Protocol (DHCP), Domain Name System (DNS), Telnet (TERminal NETwork), File Transfer Protocol (FTP), Trivial File Transfer Protocol (TFTP), Simple Mail Transfer Protocol (SMTP), Simple Network Management Protocol (SNMP).]

Text Book: 1. Computer Networks – A. S. Tanenbaum. PHI

Ref. Book:

1. Data Communications and Networking – Dr. M Jain & S. Jain. BPB
2. Internetworking with TCP/IP – Douglas E. Comer. PHI.
3. Data Communications and Networking – Behrouz A. Forouzan. TMH

Question Paper Scheme:

University Examination Duration : 3 Hours.

Q.1 - Unit-I (20 Marks)

- A. Objective/ Short Questions.
- B. Descriptive/ Long questions.

Q.2 - Unit-II (18 Marks)

- A. Objective/ Short Questions.
- B. Descriptive/ Long questions.

Q.3 - Unit-III (16 Marks)

- A. Objective/ Short Questions.
- B. Descriptive/ Long questions.

Q.4 - Unit-IV (16 Marks)

- A. Objective/ Short Questions.
- B. Descriptive/ Long questions.

Note: Options should be given in all questions.