

HEMCHANDRACHARYA NORTH GUJARAT UNIVERSITY, PATAN

B.C.A. Semester – III

Elective-I : BCA-304 : Computer Network

Teaching Scheme (Per week)		Teaching Scheme (Per semester)		Examination Scheme					
				INT		EXT		TOTAL	
Th. (hours)	Pr. (hours)	Total Hours	Credit	Th. (marks)	Pr. (marks)	Th. (marks)	Pr. (marks)	Th. (marks)	Pr. (marks)
4	--	40	4	30	--	70	--	100	--

Unit - I

[18 Marks]

Basic of Computer Networks: 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:** Structure of telephone system, the local loops, trunks and multiplexing (FDM and TDM). **Switching:** Circuit switching, message switching, Packet Switching.

Unit - II

[17 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)

Unit - III

[18 Marks]

Data Communication Components: Modem, Routers, Bridges, Hubs, Switches. **Data Link Protocols:** Asynchronous, Synchronous, Character Oriented and Bit Oriented Protocols. **IP Addressing:** IP Address class, Network and Host Addressing, Subnet, Subnet Mask, Sub netting, Super netting.

Unit - IV

[17 Marks]

Mobile computing: Definition, Devices (Personal digital assistant/enterprise digital assistant, Smart Phone, Tablet computer). **Mobile data communication:** Wireless, GSM, CDMA or GPRS, 2G, 3G Wi-Fi.

Text Book:

1. **Computer Networks**, A. S. Tanenbaum. PHI
2. **Data Communications and Networking**, Behrouz A. Forouzan. TMH
3. **Introduction to Mobile Computing**, T. Imielinski, H.F. Korth.

Question Paper Scheme:

University Examination Duration: 3 Hours.

Q.1 - Unit-I (18 Marks)

A. Objective/ Short Questions.

B. Descriptive/ Long questions.

Q.2 - Unit-II (17 Marks)

A. Objective/ Short Questions.

B. Descriptive/ Long questions.

Q.3 - Unit-III (18 Marks)

A. Objective/ Short Questions.

B. Descriptive/ Long questions.

Q.4 - Unit-IV (17 Marks)

A. Objective/ Short Questions.

B. Descriptive/ Long questions.

Note: All Objective/ Short Questions are compulsory, no option will be given.

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