Syllabus

Panjab University

PGDCA
Computer Networks and Data Communications

Paper Code : PGD-04 **Max. Marks : 80** **Time : 3 Hrs.**

Course Duration : 60 Lectures of one hour each.

Objective : *The course aims of familiarizing the students with fundamentals of computer networks.*

Note :

- (i) *The Question Paper will consist of Four Sections.*
- (i) *Examiner will set total of **NINE** questions comprising **TWO** questions from each Section and **ONE** compulsory question of short answer type covering whole syllabi.*
- (iii) *The students are required to attempt **ONE** question from each Section and the Compulsory question.*
- (iv) *All questions carry equal marks unless specified.*

SECTION – A

1. Introduction to Data Communication, Analog Vs Digital Communication; Fourier Analysis, Band Width Limitation, Data rate of a channel, Error Detection and Correction: Nature of errors, Parity Check, CRC, Hamming Code, Modulation techniques : AM, PM, FM, Synchronous and Asynchronous Modulation, Multiplexing: SDM, FDM, TDM, STDM. *(No. of Lectures : 15)*

SECTION – B

2. Introduction to Computer networks and applications; Network Structure and Architecture, OSI reference model, Network standardization, Physical Layer : Circuit switching, Packet Switching,

Message Switching, Terminal Handling, Telephone system, modems, congestion, Multi channel Access, Transmission media.

(No. of Lectures : 15)

SECTION – C

3. The Data Link Layer : Design Issues, Elementary Data Link Protocols, Sliding Windows Protocol, Protocol performance, Protocol Specification & verification, DLL in X. 25, HDLC/SDLC. *(No. of Lectures : 15)*

SECTION – D

4. The Network Layer : Design issues, Routing Algorithms, Congestion Control Algorithms, Internet working, Example of Network Layer in ARPANET, X.25 Protocol *(No. of Lectures : 15)*