

Punjab Technical University
Master of Computer Application Examination

MCA 2nd Semester DATA COMMUNICATIONS AND NETWORKS 2006

Time: Three hours Maximum: 100 marks

First Question is Compulsory

Answer any FOUR from the remaining

Answer ALL parts of any Question at one place.

QUESTION 1. Explain the following

- a) Data Communication characteristics.
- b) Interfaces
- c) Frequency
- d) Spectrum of a signal
- e) Phase modulation
- f) PPP stack
- g) Framing
- h) Router
- i) UDP
- j) Virtual Terminal

QUESTION 2

a) Draw two sine waves on the same time domain axes. The characteristics of each signal are given below:

Signal A: amplitude 40, frequency 9, phase 0

Signal B: amplitude 10, frequency 9, phase 90

b) Using the Nyquist theorem, calculate the sampling rate for the following analog signal with bandwidth 2000 Hz

QUESTION 3

a) Explain the features of optical fiber.

b) Describe Satellite Communication.

c) Given the following information, find the minimum bandwidth for the path:

FDM multiplexing.

Five devices, each requiring 4000 Hz

200 Hz guard band for each device.

QUESTION 4

a) Explain different types of redundancy checks.

b) Construct the Hamming code for the bit sequence 10011101.

QUESTION 5

- a) Explain sliding window protocols.
- b) Explain CSMA/CD and its use.

QUESTION 6

- a) Describe ARP.
- b) Explain multi casting routing protocols.

QUESTION 7. Explain services provided by transport layer protocol.

QUESTION 8

- a) Explain client-server model.
- b) Explain how SMTP is useful to send e-mails.