Nepal College of Information Technology

**Unit Test**

Spring 2013

Program : BE Time : 2 hrs

Semester : (VI) FM : 70

Subject : Data Communication PM : 35

* *Candidates are requested to give their answer as far as practicable in their own words.*
* *The figure in the margin indicates the full marks*
* ***Attempt ALL question***

1. a) Briefly explain the block diagram of communication system. The spectrum of channel is between 2.2MHz and 4.1MHz and SNR is 32dB. Calculate the maximum channel capacity.

b) Differentiate between:

i) Synchronous and asynchronous communication

ii) Bit rate and Baud rate

2. a) What do you mean by power type and energy type signals? Check whether x(t) = Acoswot is power type or energy type signal.

b) Determine whether or not the given signal y(n) = nx(n2) is

i) linear ii) causal

iii) stable and iv) shift invariant

3. a) What is the importance of using mathematical tool like Fourier Series and Fourier Transform. Find the Fourier transform for unit step function.

b) What do you mean by multiple access?How collision can be detected on CSMA/CD protocol?

4. a) List the layers of the OSI model. How does information show from one OSI layer to the next?

b) Write down the characteristics of Continuous Time Fourier series.

5. Write Short Notes On: (Any two)

a) WAN protocols (X.25,frame relay,ATM)

b) RS-232 interface

c) LAN topologies

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