Nepal College of Information Technology

**Unit Test**

Fall 2013

Program : BE\_ELX Time : 2 hrs

Semester : (VII) FM : 70

Subject : Digital 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. How digital communication superior in terms of performance, reliability and security? Discuss with block diagram. 5

b. State and prove sampling theorem. 5

c. what is aliasing & reconstruction? Evaluate sampling frequency for x(t)=12.55 cos 1540t + 11.34 sin 3080t \*31.416 cos 3077t using nyquist rate . 5

2 a. Discuss PCM and derive SQNR of PCM.

b. What is multiplexing? Compare and contrast T1 and E1 in telephony.

c. Encode A00Ch using AMI,HDB3,B8ZS.

3 a. What is two forms of prominent noise in Delta Modulation. Explain with transmitter and receiver.

b. Derive Channel capacity of a medium when BW is infinite.

c. What is matched filter for AWGN? Discuss with expressions BER of noisy channel.

4 a. Discuss digital modulation techniques with detection and generation of binary PSK signals.

b. Discuss and derive properties of entropy. Explain Huffman coding with an example.

5. Write short notes on 5\*2

a. ISI

b. CRC generation and Checker

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