nepal college of information technology

Assessment

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| Level: Bachelor | Semester – Spring | Year : 2013 | |
| Programme: BE\_ELX\_CE | | Full Marks : 100 | |
| Pass Mark : 45 | |
| Course: Data Communication | | Time : 3 hrs | |
| *Candidates are required to give their answers in their own words as far as practicable.* | | |
| *The figures in the margin indicate full marks.* | | |
| Attempt all the questions. | | |

1. (a) Explain the block diagram of the data communication system. Differentiate between digital and analog data transmission. **7**

(b) Explain different types of line configurations. The spectrum of channel is between 2.2MHz and 4.1MHz and SNR is 32dB. Calculate the maximum channel capacity. **8**

2. (a) Differentiate between: **8**

i) Synchronous and asynchronous communication

ii) Parallel and Serial transmission

(b) Briefly explain the basic properties of Discrete time system. **7**

3. (a) Obtain the Fourier series representation of the equation: **7**

X (t) = A 0 < t < T/2

-A T/2 < t < T

(b) Find the Fourier transform of signum function. Also sketch the magnitude and phase spectrum. **8**

4. (a) Describe the types of networks.(LAN,MAN,WAN ). **7**

(b) What are guided and unguided transmission media? Discuss the advantages of fiber optic over other guided media. **8**

5. (a) What are the demerits of parity method for Error Detection technique, how can LRC method overcome these problems. **8**

(b) When there is no synchronization between the sender and the receiver, the data get lost due to overflow. How can it be overcome, Explain all the Techniques. **7**

6. (a) How CRC method detect error? Generate CRC code for the data word 11110101010 using the divisor 111101. **7**

(b) Explain the term multiplexing and switching. What are the components of Private Branch Exchange? **8**

**OR**

7. (a) Differentiate between encoding and modulation. Encode the bit stream 1100001011 using

i) Polar RZ

ii) Polar NRZ

iii) AMI

iv) Manchester

v) HDB3 **8**

(b) Explain Pulse Code Modulation with Block Diagram and example. **7**

8) Write Short Notes On: **(Any two) (2\*5)**

(a) TDM technology

(b) DPSK

(c) CSMA/CD