TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2078 Bhadra

Exam.	Regular		
Level	BE	Full Marks	80
Programme	BCT	Pass Marks	32
Year / Part	III / I	Time	3 hrs.

Subject: - Data Communication *(CT 602)*

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ *Attempt **All** questions.*
- ✓ *The figures in the margin indicate **Full Marks**.*
- ✓ *Assume suitable data if necessary.*

1. Differentiate between energy and power signals with examples. Determine if the following system is stable LTI. [5+5]
   $Y(t) = x(t^2)$
2. List and describe all data communication parameters that describe the performance of the system. [8]
3. Explain how we plot line spectrums of a continious time signal and illustrate an example. [8]
4. Encode 111000000000000011 using B8ZS and HDB3 encoders. [10]
5. Demonostrate how checksum is used to detect errors while sending a data word of 12, 15, 15, 10, 5, 2. [8]
6. a) Explain the working principle of FHSS technique. [5]
   b) Explain how CDMA works with example. [5]
7. What are linear block codes? Design a code word of a C(8, 4) block code with any suitable generation matrix. [8]
8. Encode "Jasta lai tastai dhido lai nistai" using weighted Huffman encoder. Also demonstrate how it is decoded. [10]
9. Describe with short notes on: (Any Two) [2×4]
   a) Double-tone AM
   b) Hamming codes
   c) Packet switching versus message switching
   d) X.25 protocol

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