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Roll No. 2704033

Total No. of Pages : 1

BT-5/D06

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**Information Theory and Coding
Paper-ECE-305 E**

Time : Three Hours]

[Maximum Marks : 100

Note :- Attempt **FIVE** questions, selecting at least **ONE** from each unit.

UNIT-I

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1. Explain the following :
 - (a) Random Process
 - (b) Probability Distribution and Density Function
 - (c) Moments
 - (d) Exceptionation 20
2. (a) Define and explain Channel Coding Theorem. (
(b) Using Shano-Fano Coding to calculate efficiency of following system :
$$x_1 = x_1 \quad x_2 \quad x_3 \quad x_4 \quad x_5$$
$$P(x_i) = .30 \quad .25 \quad .20 \quad .15 \quad .10.$$
 1.

UNIT-II

e

3. Explain Entropy, Mutual Information and their properties. 2
4. What do you mean by Discrete Memoryless Channels, BSC B.E.C. Explain with examples. 2

UNIT-III

5. Explain with example how Block Codes are used to detect and correct errors. 2
6. Explain B.C.H. Codes and Hamming Codes. 2

UNIT-IV

7. Explain Convolution Code with suitable examples. 2
8. Explain ARQ and Hybrid ARQ Strategies. 2