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Total No. of Pages : 01

Total No. of Questions : 08

M.Tech.(ECE) (2018 Batch) (Sem.-1)
STATISTICAL INFORMATION PROCESSING
Subject Code : MTEC-PE1X-18-3
Paper ID : [75176]

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :**1.Attempt any FIVE questions out of EIGHT questions.****2.Each question carries TWELVE marks.**

- Q1 a) Explain the role of stochastic integral in the analysis of random process. (6)
b) Explain ergodicity and power spectral density in the context of random process. (6)
- Q2 a) Explain central limit theorem and its applicability. (6)
b) Explain the properties of orthogonal random variables. (6)
- Q3 a) Define and explain the need of covariance function for random variables. (6)
b) Explain the properties of discrete-time random process. (6)
- Q4 a) Explain hidden Markov model. (6)
b) Explain the properties of linear system. (6)
- Q5 Explain :
a) Bay's criterion. (4)
b) Binary hypothesis testing. (4)
c) Minimax criterion (4)
- Q6 a) Explain maximum likelihood estimation method. (6)
b) Explain recursive least square estimator. (6)
- Q7 Write short notes on :
a) Periodogram (4)
b) Welch modification (4)
c) BCH code (4)
- Q8 a) Explain information, entropy, mutual information and channel capacity. (8)
b) Explain source coding theorem. (4)