

Roll No.

Total Pages : 2

BT-4/M-22

44233

BAYESIAN DATA ANALYSIS

Paper-BS-AIDS-202A

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt *five* questions in all, selecting at least *one* question from each unit. All questions carry equal marks.

UNIT-I

1. (a) What is Bayesian Inference? What is the goal of Bayesian Inference? How does it work? Discuss.
(b) Write a note on Bayesian Modelling in data analysis.
2. (a) What is learning? How is it performed using Bayesian Network? Discuss.
(b) What is Dirichlet distribution? Write a note on Dirichlet process.

UNIT-II

3. (a) Differentiate between posterior distribution and posterior predictive distribution.
(b) What is Bayesian prediction? What is a posterior predictive check? Discuss.

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4. (a) What is the difference between personal and institutional decisions? Illustrate.
- (b) What is decision analysis? What are the different phases in it? Discuss.

UNIT-III

5. (a) What do you understand by Markov chain analysis? Discuss.
 - (b) Write the Hamiltonian Monte Carlo algorithm. What is NO U TURN sampler? Discuss.
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6. What is Gibbs Sampling? What are its advantages? Discuss its implementation in R.

UNIT-IV

7. What is the use of Bayesian regression? Write a note on Frequentist Ordinary Least Square (OLS) Simple Linear Regression.
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8. What is causal inference? What are the Criteria for Inferring Causality? Discuss the causal inference using regression.
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