QP Code: U25C058

Reg. No : .....

Name : .....

ST MARY'S COLLEGE (AUTONOMOUS), THRISSUR-20

III SEMESTER (FYUGP) DEGREE EXAMINATIONS, OCTOBER 2025

BCA

BCA3CJ203 : INTRODUCTION TO DATA SCIENCE

2024 Admission Onwards

(Credits: 4)

Time: 2 Hours **Maximum Marks: 70**

Section A

*Answer **all**. Each question carries **3** Marks* ***(Ceiling: 24 Marks)***

1. Explain how Data Science contributes to airline route planning.
2. Mention the impact of machine learning on the evolution of Data Science.
3. List any two benefits of data discretization and explain briefly.
4. What is data transformation? Why is it important?
5. List and explain the three types of kurtosis.
6. Explain the importance of descriptive statistics.
7. Explain the purpose of a histogram of residuals in regression analysis.
8. Explain the assumptions of independence and homoscedasticity in regression analysis.
9. What is Dimensionality Reduction? Mention one commonly used technique.
10. List three industries where predictive analytics is applied and give one example for each.

Section B

*Answer **all**. Each question carries **6** Marks* ***(Ceiling: 36 Marks)***

11. List out and explain the key differences among Data Scientist, Data Analyst, and Data Engineer.
12. Explain the roles and responsibilities of a Data Scientist.
13. Compare manual and automated data collection methods. State their advantages and disadvantages.
14. Explain various steps involved in Data Pre-processing.
15. Explain the components of a Box Plot with a neat diagram.

Turn Over

16. Compare and contrast positive, negative, and no correlation. Give examples.

17. Explain the importance of accuracy, precision, recall, and F1-score in model evaluation.

18. Explain the workflow of supervised learning technique.

Section C

*Answer **any one**. Each question carries **10** Marks* ***(1x10=10marks)***

19. Discuss the essential steps involved in data cleaning with suitable examples.

20. How do residual plots help in identifying outliers and model inadequacies in regression analysis? Explain.

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