4E1308

Roll No. _____ Total No. of Pages: 2

4E1308

B. Tech. IV - Sem. (Main / Back) Exam., - 2025

Automobile Engineering

4AE2-01 Data Analytics

AE, ME, PT

Time: 3 Hours **Maximum Marks: 70**

Instructions to Candidates:

Attempt all ten questions from Part A, five questions out of seven questions from Part B and three questions out of five questions from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used /calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1. NIL 2. NIL

PART – A

[10×2=20]

(Answer should be given up to 25 words only)

All questions are compulsory

Q.1 Discuss the need of Data Analytics.

Q.2 What is multivariate analysis?

Q.3 What is the principle behind hierarchical clustering technique?

Q.4 Write the Key points of oblique rotation.

Q.5 What is ANOVA?

Q.6 What is perceptual map?

Q.7 Why sigmoid function is used in logistic regression?

Q.8 What is the need of dimensionality reduction of a data set?

Q.9 List the names of any two visualizations tools.

Q.10 Distinguish between the standard error of the estimate and its square.

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PART – B

[5×4=20]

(Analytical/Problem solving questions)

Attempt any five questions

Q.1 Illustrate the K-means algorithm in detail with its advantages.

Q.2 What is the use of confusion matrix? Define all the related terms of a confusion matrix.

Q.3 What is Big data? Explain 3 V's of Big data.

Q.4 Compare simple discriminant analysis and multiple discriminant analysis.

Q.5 Write important steps of ARIMA model for time series data analysis.

Q.6 Draw data analytics lifecycle and give brief description about all phases.

Q.7 Given data {2, 3, 4, 5, 6, 7; 1, 5, 3, 6, 7, 8}. Compute the principal component using PCA algorithm.

PART – C

[3×10=30]

(Descriptive/Analytical/Problem Solving/Design Questions)

Attempt any three questions

Q.1 Differentiate between CHAID and CART. How CHAID is better than CART?

Q.2 Explain the conjoint analysis by showing all necessary steps.

Q.3 Compare various types of Support vector and Kernel methods of data analytics.

Q.4 Explain briefly MANOVA and MANCOVA.

Q.5 Discuss the objectives and scope of data in the industry.

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