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# 411001

B. Tech. IV - Sem. (Main / Back) Exam., (Academic Session 2021- 2022) Mechanical Engineering 4ME2 - 01 Data Analytics

Time: 2 Hours

Maximum Marks: 80 Min. Passing Marks:

#### Instructions to Candidates:

- Part A: Short answer questions (up to 25 words)  $2 \times 3$  marks = 6 marks. Candidates have to answer two questions out of five.
- Part B: Analytical/Problem solving questions  $3 \times 15$  marks = 45 marks. Candidates have to answer three questions out of six.
- **Part** C: Descriptive/Analytical/Problem Solving questions  $1 \times 29$  marks = 29 marks. Candidates have to answer one questions out of three.

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. <u>NIL</u>

2. NIL

### PART – A

Q.1 What are the main goals of component analysis?

Q.2 What are outliers?

Q.3 Relate the purpose of Regression Analysis.

Q.4 What are clusters?

Q.5 What is the need of Big Data Analysis?

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# PART - B

- Q.1 Differentiate between Hierarchical and Non-Hierarchical Clustering.
- Q.2 What do you mean by 'Analysis of variance' and covariance?
- Q.3 Explain the concept of ARIMA model in detail.
- Q.4 Discuss the functions of each layers in Big Data architecture design.
- Q.5 Distinguish between linear and non-linear regression.
- Q.6 Explain decision tree analysis. How does CHAID tree works?

# PART - C

- Q.1 (a) What is conjoint analysis?
  - (b) What do you mean by factor score estimation?
- Q.2 (a) Explain 'Backward' and 'Forward propagation' in detail.
  - (b) What is Normality?
- Q.3 Explain the following -
  - (a) Multiple Discriminant Analysis
  - (b) Orthogonal and Oblique Rotation

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