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Barasat, Kolkata -700125

BRAINWARE UNIVERSITY

Term End Examination 2024-2025

Programme – B.Tech.(CSE)-DS-2022

Course Name – Data Handling and Visualization

Course Code - PEC-CSD601B

(Semester VI)

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :

- (i) Why is data-driven decision-making important in businesses?
 - a) It guarantees 100% accuracy in predictions
 - b) It removes the need for human judgment
 - c) It enables faster and more informed decisions
 - d) It eliminates all risks in business
- (ii) Which of the following is NOT an aspect of the data and analytics framework?
 - a) Data Identification
 - b) Data Organizing
 - c) Data Fabrication
 - d) Data Processing
- (iii) What is the primary goal of a data and analytics framework?
 - a) To process data faster
 - b) To organize, analyze, and extract insights from data
 - c) To store data efficiently
 - d) To prevent data breaches
- (iv) Which technique is commonly used to process large datasets efficiently?
 - a) Manual sorting
 - b) SQL Queries and Machine Learning algorithms
 - c) Simple Excel spreadsheets
 - d) Data duplication
- (v) Why is real-time analytics important in modern business operations?
 - a) Provides immediate insights for decision-making
 - b) Increases data storage requirements
 - c) Eliminates the need for historical data
 - d) Slows down operational processes
- (vi) Which programming language is widely used for statistical computing?
 - a) C++
 - b) R
 - c) HTML
 - d) Swift
- (vii) What is the primary purpose of data visualization in Excel?
 - a) To create animations
 - b) To summarize and present data graphically
 - c) To encrypt datasets
 - d) To write programming scripts
- (viii) Which Excel feature allows users to filter and sort large datasets easily?

- a) Pivot Tables
c) Spell Check
- (ix) Why is cross-filtering an important feature in Power BI dashboards?
a) It enables interaction between different visual elements to refine insights
c) It converts textual data into numerical format
- (x) How does handling missing data improve model performance?
a) It ensures models are trained on complete and accurate datasets
c) It prevents data from being used in predictions
- (xi) Which measure of central tendency is most affected by outliers?
a) Median
c) Mean
- (xii) In a normal distribution, where do most of the data points lie?
a) Close to the mean
c) In the lower quartile
- (xiii) What is the purpose of a box plot in data visualization?
a) To display the distribution and variability of data
c) To compare multiple datasets using percentages
- (xiv) How can skewness affect data distribution?
a) It indicates asymmetry in the dataset
c) It eliminates variability in data
- (xv) Why is it necessary to consider sample size when analyzing statistical distributions?
a) A larger sample size increases reliability and reduces variability
c) A smaller sample size always leads to more accurate results
- b) AutoCorrect
d) Text Formatting
- b) It speeds up SQL queries
d) It removes duplicate records automatically
- b) It increases the dataset size randomly
d) It eliminates the need for feature selection
- b) Mode
d) Range
- b) In the upper quartile
d) At the extreme ends of the dataset
- b) To encrypt sensitive data
d) To transform categorical data into numerical format
- b) It makes data perfectly symmetrical
d) It is unrelated to data analysis
- b) Sample size has no impact on statistical accuracy
d) Increasing sample size reduces the need for hypothesis testing

Group-B

(Short Answer Type Questions)

3 x 5=15

2. How data analytics can be use in solving problems related to business? (3)
3. Create a simple example of exploratory data analysis(EDA) using Python code. (3)
4. How does PCA help in dimensionality reduction? (3)
5. Explain the four key aspects of the data and analytics framework. (3)
6. Design an effective data visualization strategy for a retail business using Power BI. (3)

OR

Design a preprocessing pipeline to clean and transform a dataset with missing values, categorical data, and outliers. (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

7. How does Power BI enhance data visualization and reporting in business analytics? (5)
8. How does frequency distribution help in analyzing datasets? (5)
9. Explain the significance of data visualization in statistical analysis. (5)
10. Compare and contrast the functionalities of Power BI and Tableau. (5)
11. Compare and contrast mean, median, and mode imputation for handling missing data. (5)

12. Design an effective data analysis strategy for a financial services company using Tableau and Power BI. (5)

OR

Design a strategy for selecting the most effective data visualization techniques for different types of data. (5)

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