END TERM EXAMINATION

SIXTH SEMESTER [BCA] JUNE 2024

Paper Code: BCAT-312	**Subject: Data Visualization and Analytics**
Time: 3 Hours	**Maximum Marks: 75**

Note: Attempt all questions as directed. Internal choice is indicated.

Q1   Attempt **any Ten** of the following questions in brief: **(2.5x10=25)**
- (a) Segmentation
- (b) handling Missing Values
- (c) Outlier Detection and Treatment
- (d) Simpson's Paradox
- (e) P-Value
- (f) Confidence Interval
- (g) Correlation and Causation
- (h) Subplots
- (i) Line Graph
- (j) Steps of mysql Database connectivity in python
- (k) GUI Widgets
- (l) Color Palette

Q2   (a)   What is Data Analytic? Explain analytics process model with diagram.   **(6.5)**
     (b)   Discuss various profiles where analytics have been used.   **(6)**

OR

Q3   (a)   Explain various Sources of data collection methods.   **(6.5)**
     (b)   Discuss various data standardization methods with example of each method.   **(6)**

Q4   (a)   Explain sampling distribution and its type.   **(5)**
     (b)   Explain the concept of hypothesis testing and its significance in statistical analysis. Provide an example scenario where hypothesis testing could be applied, and outline the steps involved in conducting a hypothesis test.   **(7.5)**

OR

Q5   Differentiate between t-test and z-test in hypothesis testing. Provide examples of situations where each test would be appropriate, and explain the conditions under which each test is preferred. Additionally, discuss the implications of sample size and population variance on the choice between t-test and z-test.   **(12.5)**

Q6   (a)   What is Data Visualization? Explain the packages used for data visualization in Python.   **(5)**
     (b)   Explain the function relplot(), displot(), catplot() used for data visualization in Python.   **(7.5)**

OR

Q7   (a)   What are scatter plots? Explain in detail. What are the characteristics of scatter plots?   **(5)**
     (b)   Explain Bar Charts and Pie Charts. How these charts can be plotted using matplotlib in Python.   **(7.5)**

Q8   (a)   What are the fundamental concepts of Python GUI programming and how do layout managers contribute to designing user interfaces?   **(7.5)**
     (b)   What are the key concepts and libraries involved in Python GUI programming?   **(5)**

OR

Q9   What are widgets in the context of Python's Tkinter library, and how are they used to create graphical user interfaces? Provide examples of at least three different Tkinter widgets and describe their functionalities by designing a user login form.   **(12.5)**

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