

(Please write your Exam Roll No.)

Exam Roll No.

END TERM EXAMINATION

SIXTH SEMESTER [BCA] MAY-JUNE, 2025

Paper Code: BCAT-312

Subject: Data Visualization & Analytics

Time: 3 Hours

Maximum Marks: 75

Note: Attempt any five Questions including Q.No1 which is compulsory.
Select one question from each unit.

Q1. Answer any Ten of the following.

(2.5x10=25)

- i. What is the difference between sample and population?
- ii. Name different sources for data collection
- iii. Name different types of data elements.
- iv. What do you understand by imputation?
- v. Name few methods for outlier detection
- vi. Differentiate between parametric and non-parametric hypothesis testing
- vii. What is Population Distribution difference between Sampling Distribution
- viii. What is the difference between label encoding and one hot encoding?
- ix. What do you understand by stratified random sampling?
- x. Name various data standardization methods.
- xi. Name the categories for Seaborn visualization function.
- xii. How would you modify the appearance of a widget in Tkinter using style classes?

UNIT-I

Q2.

- i. Explain analytics process model in detail with diagram. (6.5)
- ii. Discuss different profiles where analytics have been used. (6)

OR

Q3.

- i. When measuring the height of all students at a local university it was found that it was normally distributed with a mean height of 0.5 feet and a standard deviation of 0.5 feet. What proportion of student are between 5.81 feet and 6.1 feet tall? $P(5.81 < x < 6.3) = ?$ (Given $P(z < 0.62) = 0.7324$ and $P(z < 1.6) = 0.9452$) (6.5)
- ii. Discuss sampling distribution and its types. (6)

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UNIT-II

Q4.

- i. To assess the significance of possible variation in performance in a certain test between the schools of a city, a common test was given to a number of students taken at random from 12 class of three schools concerned results are given below

A	B	C
9	13	14
11	12	13
13	10	17
9	15	7
8	5	9

Make the analysis of the variance for the given data. (Tabulated value $F_{0.05}=3.89$) (6.5)

- ii. A coin was tossed 484 times and head turned up 265 times. Test the hypothesis that coin is unbiased. (6)

OR

Q5.

- i. From the following data find out whether there is any relationship between sex (M/F) and preference color

Color	M	F	Total
Pink	10	40	50
Black	70	30	100
Yellow	30	20	50
Total	110	90	200

Tabulated value $\chi^2_{0.05}=5.99$ (6.5)

- ii. A random sample of 50 items gives the mean 6.2 and variance 10.24 can it be regarded as drawn from a normal distribution with 5.4 at 5% level of significance. (6)

UNIT-III

Q6.

- i. Marks is a list that stores marks of a student in 10-unit test. Write a program to plot Line chart for the student's performance in these 10 tests. (6.5)

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- ii. Write a program to draw bar graph for the following data for the Medal tally of CWG-2023:- (6)

Gold	Silver	Bronze	Total
26	20	20	66

OR

Q7.

- i. Write a program to plot a horizontal bar chart from the height of some students. (6.5)
- ii. Explain how Seaborn's statistical visualization capabilities enhance data exploration and analysis in comparison to other Python visualization libraries? (6)

UNIT-IV

Q8.

- i. Write a python code for simple GUI calculator using Tk and perform various arithmetic operations. (6.5)
- ii. Write a Python program that designs a themed label widget with a different font, color, and background style using Tkinter. (6)

OR

- Q9. Create a GUI based form for admission purpose for your college. The form is connected to the database and various database operations (create, insert, delete, update) are performed (12.5)

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