(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)**

P.T.O.

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 12class 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 $\pi^2_{0.05}$=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)**

P.T.O.

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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