PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BCom DEGREE EXAMINATION MAY 2025
(Sixth Semester)

Branch – COMMERCE (BUSINESS ANALYTICS)

DATA ANALYSIS USING PYTHON

Time: Three Hours   Maximum: 50 Marks

SECTION-A (5 Marks)
Answer ALL questions
ALL questions carry EQUAL marks   (5 x 1 = 5)

1 Which Python library is commonly used to handle tabular data?
   (i)   Matplotlib   (ii) Numpy
   (iii) Pandas   (iv) SciPy

2 Prepare a Python program to remove a key from a dictionary using
   the pop() method.
   (i)   dict.pop(key)   (ii) dict.remove(key)
   (iii) del dict[key]   (iv) dict.delete(key)

3 Which of the following file modes is used to open a file for appending data in
   Python?
   (i)   'r'   (ii) 'w'
   (iii) 'a'   (iv) 'x'

4 How do you create a Pandas DataFrame from a dictionary in Python?
   (i)   pd.DataFrame(dict)   (ii) pd.DataFrame()
   (iii) pd.DataFrame(list)   (iv) pd.createDataFrame(dict)

5 Which of the following methods is used to aggregate data in Pandas after using
   the groupby() method?
   (i)   agg()   (ii) apply()
   (iii) sum()   (iv) mean()

SECTION - B (15 Marks)
Answer ALL Questions
ALL Questions Carry EQUAL Marks   (5 x 3 = 15)

6 a Classify the following Python operators as either arithmetic, comparison,
      logical, or assignment: +, ==, and, =.
                              OR
   b Summarize the process of handling exceptions in Python. Describe the role
      of try, except, and finally blocks with an example.

7 a Analyze the differences between lists, dictionaries, and tuples in Python.
      Discuss their mutability, use cases, and performance differences.
                              OR
   b Narrate the steps to update a value in a dictionary using the key and print the
      updated dictionary.

8 a Classify the following Python data types as mutable or immutable.
      List, Tuple, String, Dictionary
                              OR
   b Summarize the difference between append() and extend() methods in Python
      lists. Give examples.

9   a   Analyze the differences in the memory usage and performance between lists and tuples in Python.

OR

    b   Compare the use of while and for loops in Python. In which situations would you prefer one over the other?

10 a   Analyze the differences between a bar plot and a pie chart in Python. When should you use each of these plots, and what insights can each provide from a dataset?

OR

    b   Describe the purpose of box plots in data visualization. Explain how they represent data and identify outliers.

SECTION -C (30 Marks)
Answer any Three questions
ALL questions carry EQUAL Marks   (3 x 10 = 30)

11   Bring out the key differences between mutable and immutable data types in Python. Provide examples to illustrate each type and the impact on programming.

12   Discover the benefits of using a set in Python. What operations can be efficiently performed using a set that would be inefficient in a list?

13   Differentiate between append (), extend(), and insert() methods in Python lists. Provide examples where each method would be appropriate.

14   Justify the use of Python's built-in functions (map (), filter(), reduce()) for functional programming. Provide examples to demonstrate their usage.

15   Compare the use of a Box Plot and a Histogram for visualizing data distributions. When would you prefer using one over the other?

Z-Z-Z   END