QP Code: D154405	Total Pages: 1	Name:
		Register No.

FIFTH SEMESTER (CUFYUGP) DEGREE EXAMINATION, NOVEMBER 2026

APPLIED PHYSICS / PHYSICS

APH5FS112 / PHY5FS112 : PYTHON FOR DATA ANALYSIS

2024 Admission onwards

Maximum Time :1.5 Hours | **Maximum Marks :50**

Section A

All Questions can be answered. Each Question carries 2 marks (Ceiling : 16 Marks)

1	What are the different numerical data types in Python? Give one example of each.
2	State the use of the open() and close() functions in Python.
3	What is NumPy? Mention any two advantages of using NumPy arrays.
4	Name any two methods used to handle missing values in a DataFrame.
5	What is correlation? Name the pandas function used to find it.
6	Why is data visualization important? Mention any two reasons.
7	Define a histogram. What information does it give?
8	Explain the term correlation matrix.
9	What is a heat map? Mention one use of it.
10	Distinguish between loc and iloc in pandas.

Section B

All Questions can be answered. Each Question carries 6 marks (Ceiling : 24 Marks)

11	Write a Python program to create a NumPy array and demonstrate any two operations on it, such as finding the sum and the mean of its elements.
12	Explain how missing values in a DataFrame are handled using fillna() and dropna(), with examples.
13	Explain sorting of a DataFrame. Write the Python code to sort a DataFrame by a column and by its index labels.
14	Write the Python code to draw a scatter plot of sonometer data - mass against length squared - with labels on the axes and a title for the graph.
15	Write the Python code to read an ExpEYES capacitor-charging CSV file into a DataFrame and to (i) display the first five rows and (ii) display the first three rows and the first two columns using iloc.

Section C

Answer any ONE. Each Question carries 10 marks (1x10=10 Marks)

16	Explain grouping and aggregation operations in pandas. Illustrate with suitable examples using groupby() and aggregate functions.
17	Explain Seaborn as a visualization tool. Describe its features and explain the distribution plot, the density plot and the violin plot with examples.