

1. All Questions are compulsory.
2. All Questions carry equal marks.

**Q.1 Answer the following. (Attempt any three)**

**[15marks]**

- a. Explain various features of Python.
- b. Explain break statement in Python with an example.
- c. Write a program to check whether the number is prime or not.
- d. Write a program to find factorial of a number. Take the input from user.
- e. Explain comments in python.
- f. Write a program to show assert statement in Python.

**Q.2 Answer the following. (Attempt any three)**

**[15marks]**

- a. Define Functions. Explain with an example.
- b. Explain any 5 built-in functions in Python.
- c. Explain Bitwise operators in Python.
- d. Write a program to show splitting and joining of Strings.
- e. Explain mathematical operations on Array.
- f. Explain upper( ), len( ), format( ), index( ), replace( ).

**Q.3 Answer the following. (Attempt any three)**

**[15marks]**

- a. What are Regular Expressions?
- b. Write a program to show comparison of two dates.
- c. Explain any 5 dictionary methods.
- d. Explain special characters in Regular Expressions.
- e. Write a program to show how to stop program execution temporarily.
- f. What is Dictionary? Explain with example.

**Q.4 Answer the following. (Attempt any three)**

**[15marks]**

- a. Explain any 5 magic commands in IPython.
- b. Explain in and out objects in IPython.
- c. Explain any 5 debugging commands.
- d. Write a program to show indexing and sorting of array using numpy.
- e. Write a program to show min, max, slicing of array using numpy.
- f. What are numpy structured arrays?

**Q.5 Answer the following. (Attempt any three)**

**[15marks]**

- a. Write a program to merge datasets using pandas.
- b. Write a program to find missing values using pandas.
- c. Explain any 5 aggregation functions in pandas
- d. Explain simple line plots.

- e. Explain histogram using matplotlib.
- f. Explain simple scatter plots

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