



**Avinashilingam Institute for Home Science and Higher Education for Women**  
(Deemed to be University Estd. u/s 3 of UGC Act 1956, Category 'A' by MHRD)  
Re-accredited with 'A++' Grade by NAAC. Recognised by UGC Under Section 12B  
Coimbatore - 641 043, Tamil Nadu, India

**Continuous Internal Assessment Test I – August 2025**  
**III SEMESTER**

**Class : II B.Voc.**

**Major: Artificial Intelligence and Machine Learning**

**Time: 2 hours**

**Maximum Marks: 60**

**23VAIC09 Advanced Python Programming**

**Course Outcomes:**

1. Becomes familiar with advanced python concepts
2. To understand different dataset and their manipulations
3. Capable to design the statistics, ensemble models
4. Work on window functions and analysis
5. Mastering the programming in Time series analysis.

**Part-A**

**6x1=6**

**Choose the correct answer**

1. Which library is commonly used for numerical computations in Python?  
a. Matplotlib      b. NumPy      c. Flask      d. Django      CO1K2
2. Which feature is unique to IPython compared to the standard Python shell?  
a. Compilation      b. Autocompletion      c. Decoration      d. Encryption      CO1K1
3. What is the primary library that provides the ndarray object in Python?  
a. Pandas      b. NumPy      c. SciPy      d. Matplotlib      CO2K2
4. Which data structure is the primary component of the Pandas library?  
a. Array      b. DataFrame      c. List      d. Tuple      CO2K2
5. Which Pandas function is commonly used to load raw data from a CSV file?  
a. Read\_excel      b. Read\_csv      c. load\_data      d. open\_file      CO3K2
6. Which file format is commonly used for storing hierarchical data?  
a. CSV      b. JSON      c. HDF5      d. TXT      CO3K1

**Part- B**

**3x6=18**

**Answer ALL Questions**

**Each answer should not exceed 400 words or two pages**

- 7.a. Describe a movie lens 1M dataset in detail.      CO1K3  
(or)
- 7.b. Illustrate the lpython HTML notebook.      CO1K2
- 8.a. Describe summarizing and computing descriptive statistics.      CO2K2  
(or)
- 8.b. Explain squaring of the array with examples.      CO2K3
- 9.a. Write a short note on handling missing data.      CO2K3  
(or)
- 9.b. Briefly explain about universal functions.      CO2K2

**Part-C**

**3x12=36**

**Answer ALL questions**

**Each answer should not exceed 800 words or four pages**

- 10.a. Explain about the software development tools.      CO1K2  
(or)
- 10.b. List and explain the essential libraries in detail.      CO1K3
- 11.a. Explain the data processing using arrays in detail.      CO2K2  
(or)
- 11.b. Explain hierarchical indexing in detail.      CO2K3
- 12.a. Explain file input and output using arrays.      CO2K4  
(or)
- 12.b. Describe about essential functionality in pandas.      CO2K3

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**Staff in-charge: Ms. N. Vaishnavi**