**Frage 1:**  
What does NumPy primarily provide?

A. Machine learning models  
B. Multi-dimensional array support  
C. Web frameworks  
D. GUI interfaces

**Frage 2:**  
What is the correct way to import NumPy?

A. import NumPy  
B. import numpy as np  
C. include numpy  
D. import numpy()

**Frage 3:**  
What is printed?

python

CopyEdit

import numpy as np

a = np.array([1, 2, 3])

print(a.dtype)

A. int64 or int32  
B. object  
C. list  
D. float

**Frage 4:**  
Which statement creates a 2D NumPy array?

A. np.array([[1,2],[3,4]])  
B. np.array([1,2,3,4], [5,6])  
C. np.array(1,2,3)  
D. np.array[(1,2),(3,4)]

**Frage 5:**  
Which operation is **vectorized** in NumPy?

A. a + b where a and b are lists  
B. a + b where a and b are NumPy arrays  
C. for i in a: b.append(i)  
D. while a < b

**Frage 6:**  
What is the output?

python

CopyEdit

import numpy as np

a = np.array([10, 20, 30])

print(a[1])

A. 10  
B. 20  
C. 30  
D. Error

**Frage 7:**  
Which function returns the average of an array?

A. np.average()  
B. np.mean()  
C. np.avg()  
D. Both A and B

**Frage 8:**  
What is broadcasting in NumPy?

A. Converting array to string  
B. Aligning shapes to allow operations  
C. Creating bar plots  
D. Reshaping arrays into tuples

### Pandas

**Frage 9:**  
What is a Series in Pandas?

A. A table of data  
B. A single column of data  
C. A NumPy array  
D. A dictionary

**Frage 10:**  
How do you create a DataFrame?

A. pd.DataFrame(data)  
B. pd.Data(data)  
C. pd.frame(data)  
D. pd.create(data)

**Frage 11:**  
What is printed?

python

CopyEdit

import pandas as pd

s = pd.Series([10, 20, 30], index=['a', 'b', 'c'])

print(s['b'])

A. 10  
B. 20  
C. 30  
D. 'b'

**Frage 12:**  
Which function reads a CSV file into a DataFrame?

A. pd.load\_csv()  
B. pd.read\_csv()  
C. pd.open\_csv()  
D. pd.import\_csv()

**Frage 13:**  
Which attribute gives the first rows of a DataFrame?

A. df.head()  
B. df.start()  
C. df.top()  
D. df.show()

**Frage 14:**  
What is the output?

python

CopyEdit

df = pd.DataFrame({'A': [1, 2], 'B': [3, 4]})

print(df.shape)

A. 2  
B. 2x2  
C. (2, 2)  
D. Error

**Frage 15:**  
Which syntax selects a column named 'Price'?

A. df.Price  
B. df['Price']  
C. df.loc['Price']  
D. Both A and B

### ****Answers & Explanations****

### ****NumPy****

**Frage 1:**  
**Answer:** B. Multi-dimensional array support  
**Explanation:** NumPy is designed for efficient numerical computing using arrays.

**Frage 2:**  
**Answer:** B. import numpy as np  
**Explanation:** This is the standard way to import NumPy for ease of use.

**Frage 3:**  
**Answer:** A. int64 or int32  
**Explanation:** NumPy automatically selects the most efficient integer type based on platform.

**Frage 4:**  
**Answer:** A. np.array([[1,2],[3,4]])  
**Explanation:** This creates a 2D array with two rows and two columns.

**Frage 5:**  
**Answer:** B. a + b where a and b are NumPy arrays  
**Explanation:** NumPy allows vectorized operations without explicit loops.

**Frage 6:**  
**Answer:** B. 20  
**Explanation:** Indexing in NumPy starts at 0, so a[1] refers to the second element.

**Frage 7:**  
**Answer:** D. Both A and B  
**Explanation:** Both np.mean() and np.average() return the average (mean) of array values.

**Frage 8:**  
**Answer:** B. Aligning shapes to allow operations  
**Explanation:** Broadcasting allows NumPy to perform arithmetic on arrays of different shapes.

### ****Pandas****

**Frage 9:**  
**Answer:** B. A single column of data  
**Explanation:** A Series is a one-dimensional labeled array.

**Frage 10:**  
**Answer:** A. pd.DataFrame(data)  
**Explanation:** This is the correct function to create a DataFrame in Pandas.

**Frage 11:**  
**Answer:** B. 20  
**Explanation:** Accessing 'b' retrieves the value associated with that label.

**Frage 12:**  
**Answer:** B. pd.read\_csv()  
**Explanation:** This function is used to load CSV files into a DataFrame.

**Frage 13:**  
**Answer:** A. df.head()  
**Explanation:** head() returns the first 5 rows of a DataFrame by default.

**Frage 14:**  
**Answer:** C. (2, 2)  
**Explanation:** .shape returns a tuple representing (rows, columns).

**Frage 15:**  
**Answer:** D. Both A and B  
**Explanation:** Columns in DataFrames can be accessed either via dot notation (df.Price) or bracket notation (df['Price']).