

Module 11 Quiz and Explanation

NumPy MCQs for Beginners (Part 2 Topics)

1) What will be the shape of the array in the output?

```
import numpy as np
a = np.array([1, 2, 3, 4, 5, 6])
b = a.reshape(2, 3)
print(b.shape)
```

A. (3, 2)

B. (2, 3)

C. (6,)

D. (3, 3)

✓ **Correct Answer:** B

Explanation: reshape(2,3) মানে 2 টা row আর 3 টা column। তাই উত্তর (2,3)।

2) What is the result of np.sin(np.pi/2)?

A. 0

B. 0.5

C. 1.0

D. -1.0

✓ **Correct Answer:** C

Explanation: $\pi/2$ রেডিয়ান মানে 90 ডিগ্রি, $\sin(90^\circ)=1$ । তাই উত্তর 1.0।

3) What will be the output of the following code?

```
a = np.array([1, 2, 3])
b = np.array([4, 5, 6])
print(a + b)
```

- A. [5 7 9]
- B. [14]
- C. [4 5 6 1 2 3]
- D. Error

✓ **Correct Answer:** A

Explanation: NumPy তে array যোগ মানে element-wise যোগ হয়। তাই $[1+4, 2+5, 3+6] = [5\ 7\ 9]$ ।

4) Which function returns the standard deviation of an array?

- A. np.mean()
- B. np.std()
- C. np.var()
- D. np.average()

✓ **Correct Answer:** B

Explanation: np.std() ফাংশনটি array-এর মানের বিচ্যুতি বা standard deviation হিসাব করে।

5) What will be the output of this code?

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

- A. [3 1 2]
- B. [1 2 3]

C. [2 3 1]

D. Error

✓ **Correct Answer:** B

Explanation: np.sort() array-কে ছোট থেকে বড় ক্রমে সাজায়। তাই [1 2 3]।

6) Given two NumPy matrices, A = np.array([[1, 2], [3, 4]]) and B = np.array([[5, 6], [7, 8]]), what is the correct result of the matrix multiplication dot(A,B)

- A. [[5, 12], [21, 32]]
- B. [[13, 17], [21, 25]]
- C. [[19 22] [43 50]]
- D. 64

✓ **Correct Answer:** C

Explanation : এখানে দুটি numpy array এর dot product বের করা হয়েছে।

7) What is NumPy primarily used for in Python?

- A. Building web applications
- B. Numerical and matrix computations
- C. File handling and I/O
- D. GUI design

✓ **Correct Answer:** B

Explanation: NumPy মূলত numerical computation, matrix, ও multidimensional array নিয়ে কাজ করে।

8) Which of the following statements about NumPy arrays is true?

- A. They are slower than Python lists
- B. They consume more memory
- C. They are faster and more efficient than lists
- D. They can hold mixed data types

✓ **Correct Answer:** C

Explanation: NumPy array গুলো Python list থেকে দ্রুততর ও কম মেমোরি ব্যবহার করে।