Q1. What are the benefits of the built-in array package, if any?

Ans: defines an object type which can efficiently represent an array of basic values:

Q2. What are some of the array package's limitations?

Ans: An array which is formed will be homogeneous. ...

While declaring an array, passing size of an array is compulsory, and the size must be a constant. ...

Shifting is required for insertion or deletion of elements in an array.

Q3. Describe the main differences between the array and numpy packages.

Ans: in numpy array when the desired data type of array was int and float value was sent to array.

Q4. Explain the distinctions between the empty, ones, and zeros functions.

Ans: empty, unlike zeros, does not set the array values to zero, and may therefore be marginally faster.

Q5. In the fromfunction function, which is used to construct new arrays, what is the role of the callable argument?

Ans: In the numpy.fromfunction() function, the callable argument plays a crucial role in constructing new arrays. The fromfunction() function generates a new NumPy array by applying the callable (a function) to each coordinate in the output array.

Q6. What happens when a numpy array is combined with a single-value operand (a scalar, such as an int or a floating-point value) through addition, as in the expression A + n?

Ans: When a NumPy array is combined with a single-value operand (a scalar) through addition, as in the expression A + n, NumPy performs element-wise addition between the array A and the scalar n. This means that the scalar value n is added to each element of the array A, resulting in a new array with the same shape as A.

Q7. Can array-to-scalar operations use combined operation-assign operators (such as += or \*=)? What is the outcome?

Ans:

Array functions and operators act on entire arrays. Some return a list, which can then either be used as a value for another array function, or assigned into an array variable.

Q8. Does a numpy array contain fixed-length strings? What happens if you allocate a longer string to one of these arrays?

Ans: Yes, a NumPy array can contain fixed-length strings. In NumPy, fixed-length strings are represented using the numpy.string\_ data type, which allows you to create arrays with elements of a fixed length. You can specify the length of the strings using the dtype parameter when creating the array.

Q9. What happens when you combine two numpy arrays using an operation like addition (+) or multiplication (\*)? What are the conditions for combining two numpy arrays?

Ans: When you combine two NumPy arrays using an operation like addition (+) or multiplication (\*), NumPy performs element-wise operations between the arrays. The arrays must have compatible shapes for element-wise operations to work correctly. Element-wise operations apply the operation between corresponding elements of the arrays, resulting in a new array with the same shape as the input arrays.

Q10. What is the best way to use a Boolean array to mask another array?

Ans: use the ma. make\_mask() method in Python Numpy.

Q11. What are three different ways to get the standard deviation of a wide collection of data using both standard Python and its packages? Sort the three of them by how quickly they execute.

Ans: NumPy

statistics module

Manual Calculation

12. What is the dimensionality of a Boolean mask-generated array?

Ans: one-dimensional.