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

Ans: Get Size of Array Item, Count the Number of Occurrences, Append and Extend.

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

Ans: There is no general maximum array size in numpy. If you try to create an array of 1e30 elements, it will raise an error before even trying to allocate the memory.

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

Ans: array package will mainly used for creating an array. Numpy will be used for numerical operations in numpy we can also create an 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. On the other hand, it requires the user to manually set all the values in the array, and should be used with caution.

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

Ans: fromfunction() function construct an array by executing a function over each coordinate and the resulting array, therefore, has a value fn(x, y, z) at coordinate (x, y, z).

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?

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

Ans: the += operator will be used for adding the value to existing array. And the \*= operator will be used multiply the array of elements

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

Ans: NumPy arrays have a fixed size at creation, unlike Python lists (which can grow dynamically). Changing the size of an ndarray will create a new array and delete the original. The elements in a NumPy array are all required to be of the same data type, and thus will be the same size in memory.

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: The + Operator will be used for adding an array of elements and \* operator will be used for multiplying the array of elements. The concatenate function will be used for combining two numpy array.

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

Ans: Using masked\_where() function: Pass the two array in the function as a parameter then use numpy. ma. masked\_where() function in which pass the condition for masking and array to be masked

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: Direct Method. Short Cut Method. Step Deviation Method. Are the three different ways to get the standard deviation of a wide collection of data

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