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

Ans=>no

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

Ans => size limitation according to system

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

Ans=> NumPy arrays have a fixed size at creation, unlike Python lists (which can grow dynamically)

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=> The function is called with N parameters, where N is the rank of shape

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=>it will perform an addition operation on values inside it

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

Ans=>it will give same outcome.

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

Ans=>yes it is, we have to specify the dtype in it.

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=>by addition we cant combine it will do addition of values for combining we have to use concatenate function in numpy pacakage

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

Ans=>just compare it with some value

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=>with python statistics.stdev function and np.std, DataFrame.std and here numpy is faster

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

Ans=>when we can to extract, modify, count, or otherwise manipulate values in an array based on some criterion.