1.) Explain three-dimensional data indexing.

• NumPy arrays are high-performance data
structures, better suited for mathematical
operations than Python's native list data type.
A three-dimensional (3D) array is composed of 3 nested levels of arrays, one for each
dimension.

• We USE numpy.array() TO CREATE A 3D NUMPY ARRAY WITH SPECIFIC VALUES

• Call numpy.array(object) with object as a list containing x nested lists, y nested lists inside
each of the x nested lists, and z values inside each of the y nested lists to create a x-by-y-by-z
3D NumPy array.

• a_3d_array = np.array ([[[1, 2], [3, 4]], [[5, 6], [7, 8]]])

print(a_3d_array)

OUTPUT:- [[[1 2] [3 4]] [[5 6] [7 8]]]

2.) What's the difference between a series and a dataframe?

• Series can only contain single list with index,
whereas dataframe can be made of more
than one series or we can say that a
dataframe is a collection of series that can
be used to analyse the data

3.) What role does pandas play in data cleaning?

• Data cleaning with Pandas It is an essential
skill of Data Scientists to be able to work
with messy data, missing values,
inconsistent, noise, or nonsensical data. To work smoothly python provides a built-in module
Pandas.

4.) How do you use pandas to make a data frame out of n-dimensional arrays?

• import pandas as pd # Create the dataframe
df = pd.DataFrame(numpy_array)
 df = pd.DataFrame(numpy_array,
columns=['digits', 'words']) ... df =
pd.
DataFrame(numpy_array, index=['day1',
'day2', 'day3', 'day4'], columns=['digits',
'words'])

5.) Explain the notion of pandas plotting.

• Matplotlib is a Python plotting package that makes it simple to create two-dimensional plots from data stored in a variety of data structures including lists, numpy arrays, andpandas dataframes. Matplotlib uses an object oriented approach to plotting.

• Ex:- import pandas as pd
import matplotlib.pyplot as plt
df = pd.read_csv('data.csv')
df.plot()
plt.show()