1	An ndarray X contains the following data: [[0 1 2 3] [4 5 6 7] [8 9 10 11] [12 13 14 15]] What will be returned by the statements: i) print(X[0:2,0:2] ii) print(X[2:0,2:0] iii) print(X[2:0:-1,2:0:-1])
2	Given the following ndarray Ary1 [[1 2 3], [4 5 6], [7 8 9]] Write array slices to print: a) Hoizontal rows separately b) Veritcal columns separately
3	Consider the two arrays: ar1=[[0 1 2], [3 4 5], [6 7 8]] ar2=[[10 11 12] [13 14 15] [16 17 18]] i) Write command to concatenate ar1 and ar2- i) rowwise and ii) columnwise ii) What be the resultant array if the follwing statement is given? np.hstack([ar1,ar2])
4	Consider the following ndarrays: A=[10,20,30,40,50,60,70,80,90] B=[[0,1,2,3], [4,5,6,7], [8,9,10,11], [12,13,14,15]] What will be the array slices as per the following? i) B[0:2,1:3] ii) A[2:6:3] iii) A[-1:-3] iv) B[::-1] v) B[:3,2:]
5	Write python statement to create a two- dimensional array of 4 rows and 3 columns. The array should be filled with ones.
6	Write python statement to create a one –dimensional array using arange() function .Elements will be in the range 10 to 30 with a step of 4 (including both 10 and 30). Reshape this one- dimensional array to two dimensional array of shape(2,3). Then display only those elements of this two –dimensional array which are divisible by 5.
7	Find the output: import numpy as np a1=np.array([10,11,12,13]) a2=np.array([[2,4,6],[1,3,5]]) print(type(a1)) print(a1.shape) print(a2.shape) print(a1.dtype) print(a1.itemsize)

8	Find the output: (i)
	``python
	import numpy as np
	 a=np.array([1,2,3,4])
	print(a+2)
	a[1:3]=-4
	print(a)
	``

9	Find the output:
	``python
	import numpy as np
	a=np.array([[0,2,4,6],[8,10,12,14],[16,18,20,22],[24,26,28,30]])
	print(a)
	print(a[:3,3:])
	print(a[1::2,:3])
	print(a[-3:-1,-4::2])
	print(a[::-1,::-1])
	``

10	Find the output:
	``python
	import numpy as np
	l1=[10,11,12]
	l2=[[1,2,3],[4,5,6]]
	l3=[[6],[7]]
	a1=np.vstack((l1,l2))
	print(a1)
	print(a1.shape)
	a2=np.hstack((l2,l3))
	print(a2)
	print(a2.shape)
	``

11	Find the output:
	``python
	import numpy as np
	a1=np.array([[1,2,3],[4,5,6],[7,8,9]])
	a2=np.array([[11,12,13],[14,15,16]])
	a3=np.concatenate((a1,a2),axis=0)
	print(a3)
	a3=np.concatenate((a1,a2),axis=None)
	print(a3)
	``

12	What is the output of following code?
	``python
	import numpy as np
	a = np.array([[1,2],[3,4]], dtype=np.int32)
	b = np.array([[5,6],[7,8]], dtype=np.int32)
	print(np.add(a,b))
	print(a+b)
	``

13	Write a program to create the 4 X 4 NumPy array with random element between the ranges of 15 to 85. Extract the elements from the array containing elements whose square is fully divisible by 4.

14	Fill in the blank with appropriate values to create a 3 X 3 numpy array having numbers between 10 and 50.
	``python
	import numpy as np
	a = np.arange(_____, _____).reshape((3,3))
	``

15	Write a python program to
	(i) Create two 3 X 3 numpy array having random numbers from 0 to 10.
	(ii) Stack them in such a way that resultant array will have 6 row and columns.
	(iii) Display the number of elements in the final array.