ASSIGNMENT

1. **from numpy import exp**
   def sigmoid(x):
   return 1/ (1+numpy.exp(-x))

   print(sigmoid(np.array([[1,2],[3,4],[5,6]])).shape)

   a. (3, 2) b. (2, 3) c. NameError : name 'numpy' is not defined

   d. AttributeError: module 'numpy' has no attribute 'exp'

2. **import numpy as np**

   def image2vector(image):

   v=image.reshape(image.shape[0]*image.shape[1]*image.shape[2])

   return v

   print(image2vector(np.array([[[1,2,3,4],[4,5,6,7],[7,8,9,0]],[[0,9,8,7],[5,4,3,2],[1,3,5,7]]])).shape)

   a. (24,) b. (48,) c. NameError : name 'numpy' is not defined

   d. AttributeError: module 'numpy' has no attribute 'reshape'

3. **import numpy as np**

   a=list(range(5,30,5))

   b=np.array(a)

   print(b)

   a. [5,10,15,20,25] b. array([5 10 15 20 25]) c. [5 10 15 20 25] d. [5.0 10.0 15.0 20.0 25.0]

4. **import numpy as np**

   x1,x2 = [3,4,5],[3,4,5]

   print(np.multiply(x1,x2))

   a. [[9 12 15] [12 16 20] [15 20 25]] b. [9 16 15] c. 50 d. gives some error

5. **print([(x,y) for x in range(3,0,-1) for y in range(2,0,-1) if (x+y)%3==0])**
   a. [(2, 1), (1, 2)] b. [(2, 1), (2,1)] c. [(1,2), (1, 2)] d. [(1,2), (2, 1)]

6. **import numpy**
   my_array = numpy.array([[1,2,3], 4,5,6]])
   print(numpy.flatten(my_array))
   a. [1 2 3 4 5 6] b. [[1 2 3 4 5 6]] c. NameError : name 'numpy' is not defined

   d. AttributeError: module 'numpy' has no attribute 'flatten'

7. **hello={}**

   Which one of the following generates a error?

   a. hello[12]=12 b. hello["1,2"]=(1,2) c. hello[(1,2)]="1,2" d. hello[[1,2]]={1:2}

8. **def heap(l):**

   l = l + l

```
    l.sort()
mylist = [34,22 ,57]
heap(mylist)
print(mylist)
```

a. [34,22,57,34,22,57] b. [34,22,57] c. [22,22,34,34,57,57] d. [22,34,57]

9. print(numpy.ones((1,2), dtype = numpy.int))

a. [1 1] b. [[1] [1]] c. [[1 1]] d. [1] [1]

10.
```
abcd = "aihackathon".title()
pqrs = ""
for i in range(0,len(abcd)):
    pqrs = abcd[i] + pqrs
print(pqrs.title())
```

a. Nohtakcahia b. AihackathoN c. NohtakcahiA d. nohtakcahiA

11.
```
def heap(l):
    l = l[:]
    l.sort()
    print(mylist)
mylist = [34,22 ,57]
heap(mylist[:])
```

a. [34,22,57,34,22,57] b. [34,22,57] c. [22,22,34,34,57,57] d. [22,34,57]

12.
```
import numpy as np
x1,x2 = [3,4,5],[3,4,5]
print(np.dot(x1,x2))
```

a. [[9 12 15] [12 16 20] [15 20 25]] b. [9 16 15] c. 50 d. gives some error

13.
```
import numpy as np
x1,x2 = [3,4,5],[3,4,5]
print(np.sum(np.multiply(x1,x2)))
```

a. [[9 12 15] [12 16 20] [15 20 25]] b. [9 16 15] c. 50 d. gives some error

14.
```
a, b = list(range(2,20,5)),list(range(3,20,3))
print(list(set(a).difference(set(b)))
```

a. [2,7,12,17,3,6,9,12,15,18] b. [12] c. [17,2,7] d. [3, 6, 9, 15, 18]

15. a=np.array([[2,3,4]]) then a*a?

a. [4 9 16] b. [29] c. [[4 9 16]] d. Some Error

16. If A=np.array([[1,2,3,4],[5,6,7,8]]) and B=np.array([1,2,1,2]) then A+B=?

a. [[2 4 4 6] [6 8 8 10]] b. [[1 2 3 4] [5 6 7 8] [1 2 1 2]] c. [[2 4 4 6] [5 6 7 8]] d. Some error

17.
```
def dfs(a,b):
    return a+b
```

```
def bfs(x,y):
    return dfs(x,y)
print(bfs(bfs(bfs(1,2),bfs(3,4)),(bfs(5,6))),bfs(7,8))
```

a. 36 b. 21 15 c. 10 11 15 d. 10 26

18.
```
a=np.array([list(range(1,5)),list(range(5,9)),list(range(9,13)),list(range(13,17))])
print(np.sum(a,axis=1))
```

a. 132 b. 136 c. [28 32 36 40] d. [10 26 42 58]

19.
```
a=["abcdefghijklmnopqrstuvwxyz"," zyxwvutsrqponmlkjihgfedcba"]
print(a[::-1][::-1])
```

a. zyxwvutsrqponmlkjihgfedcbaabcdefghijklmnopqrstuvwxyz

b. abcdefghijklmnopqrstuvwxyzzyxwvutsrqponmlkjihgfedcba

c. IndexError: list index out of range

d. IndexError: string index out of range

20.
```
a=np.log(np.exp([1,2,3]))
print(a)
```

Statement – 1: Values of output is same as values of input

Statement – 2: Datatype of output is different from datatype of input

Which of the following is true?

a. Statement – 1 and Statement – 2 are both false.
b. Statement – 1 is true and Statement – 2 is false.
c. Statement – 1 is false and Statement – 2 is true.
d. Statement – 1 and Statement – 2 are both true.

1. **Write a program to implement y=x^2+logx without using loops.**
   x may be a scalar or vector or tensor (n-dimensional array).

2. **Implement (X- μ)/ σ ,where μ is mean of x and σ is the standard deviation of X, without using loops. X may be a scalar or vector or tensor.**