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Question1:

```
import numpy as np
import pandas as pd

a=np.array([10,11,12,13,14],dtype='float')
print(a)

# after inserting zeroes between them

b=np.zeros(len(a)+(len(a)-1)*5)
b[::6]=a
print("Output :")
print(b)
```

Output :

```
[10.  0.  0.  0.  0.  0. 11.  0.  0.  0.  0.  0. 12.  0.  0.  0.  0.  0. 13.  0.  0.  0.  0. 14.]
```

Question 2:

```
from numpy import random

a=random.randint(2, size=(6))
print("a is ", a)

b=random.randint(2, size=(6))
print("b is ",b)

c=np.allclose(a,b) # element wise checking

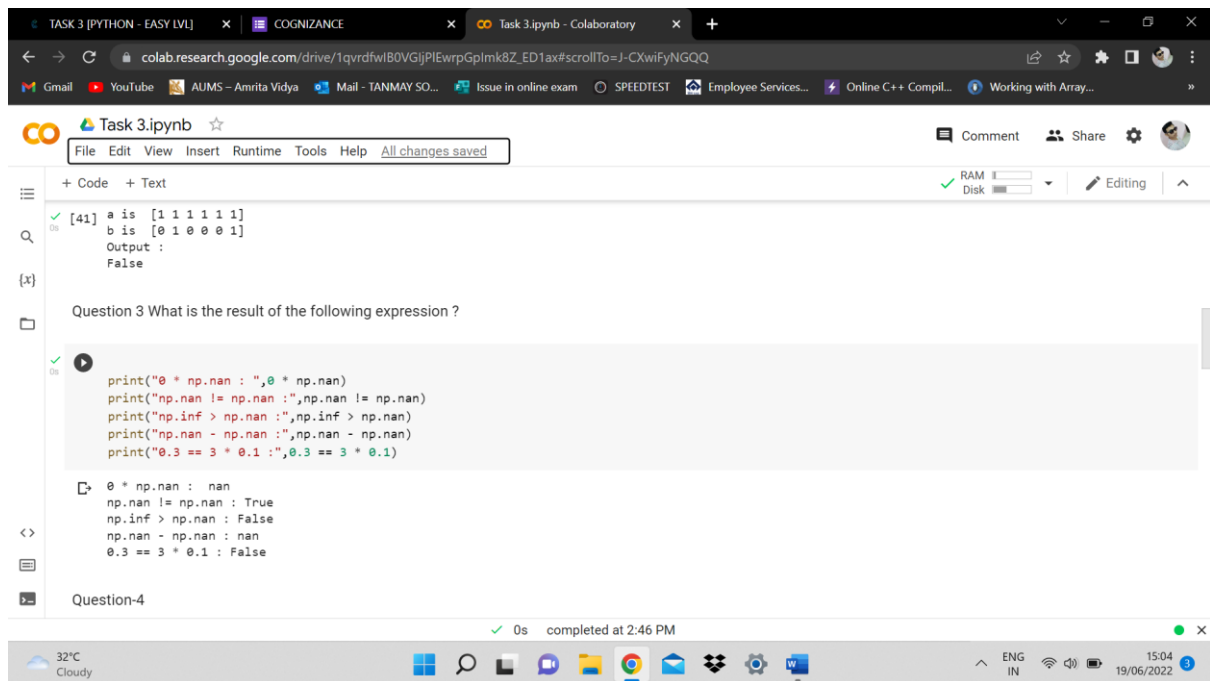
# If arrays are equal then c is true else false
print("Output :")
print(c)
```

Output :

```
a is [1 1 1 1 1 1]
b is [0 1 0 0 0 1]
False
```

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Question 3:



The screenshot shows a Jupyter Notebook interface with a browser window at the top. The notebook has a menu bar with 'File', 'Edit', 'View', 'Insert', 'Runtime', 'Tools', and 'Help'. The code cell contains the following Python code:

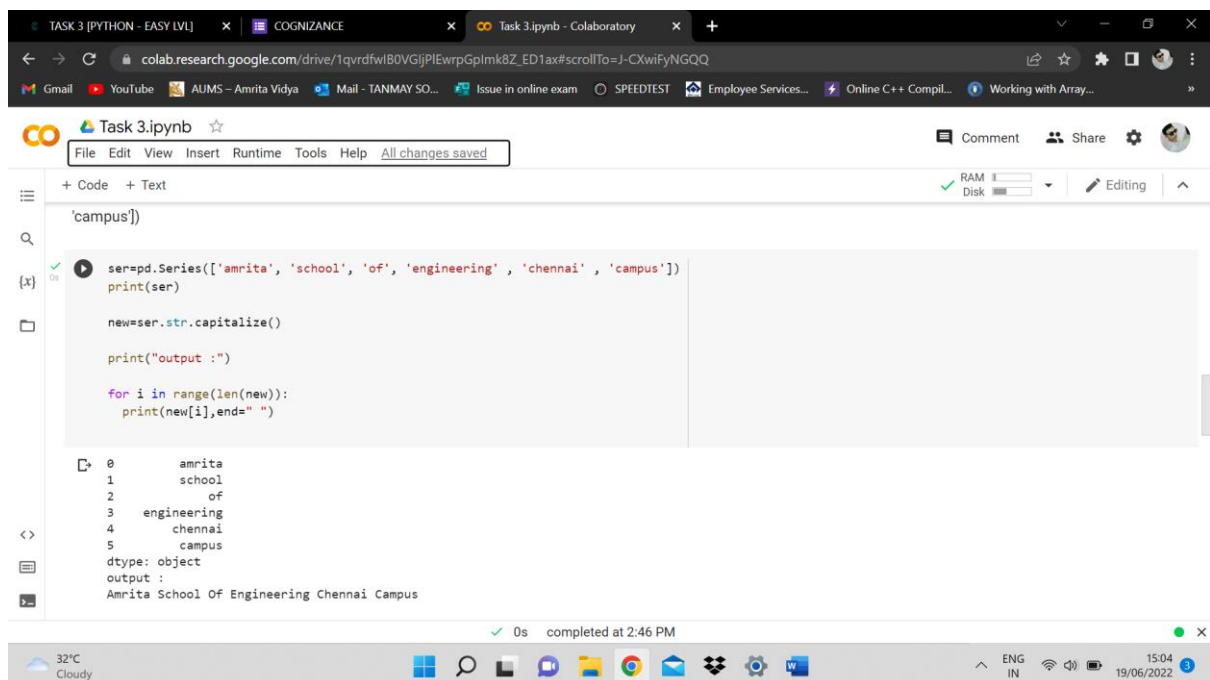
```
[41] a is [1 1 1 1 1]
      b is [0 1 0 0 1]
      Output :
      False
```

Below the code cell, the question text is displayed: "Question 3 What is the result of the following expression ?". The output cell shows the execution of the code, resulting in the following output:

```
0 * np.nan : nan
np.nan != np.nan : True
np.inf > np.nan : False
np.nan - np.nan : nan
0.3 == 3 * 0.1 : False
```

The status bar at the bottom indicates that the code was completed at 2:46 PM.

Question 4:



The screenshot shows a Jupyter Notebook interface with a browser window at the top. The notebook has a menu bar with 'File', 'Edit', 'View', 'Insert', 'Runtime', 'Tools', and 'Help'. The code cell contains the following Python code:

```
'campus'])
ser=pd.Series(['amrita', 'school', 'of', 'engineering', 'chennai', 'campus'])
print(ser)

new=ser.str.capitalize()

print("output :")

for i in range(len(new)):
    print(new[i],end=" ")
```

Below the code cell, the question text is displayed: "Question 4". The output cell shows the execution of the code, resulting in the following output:

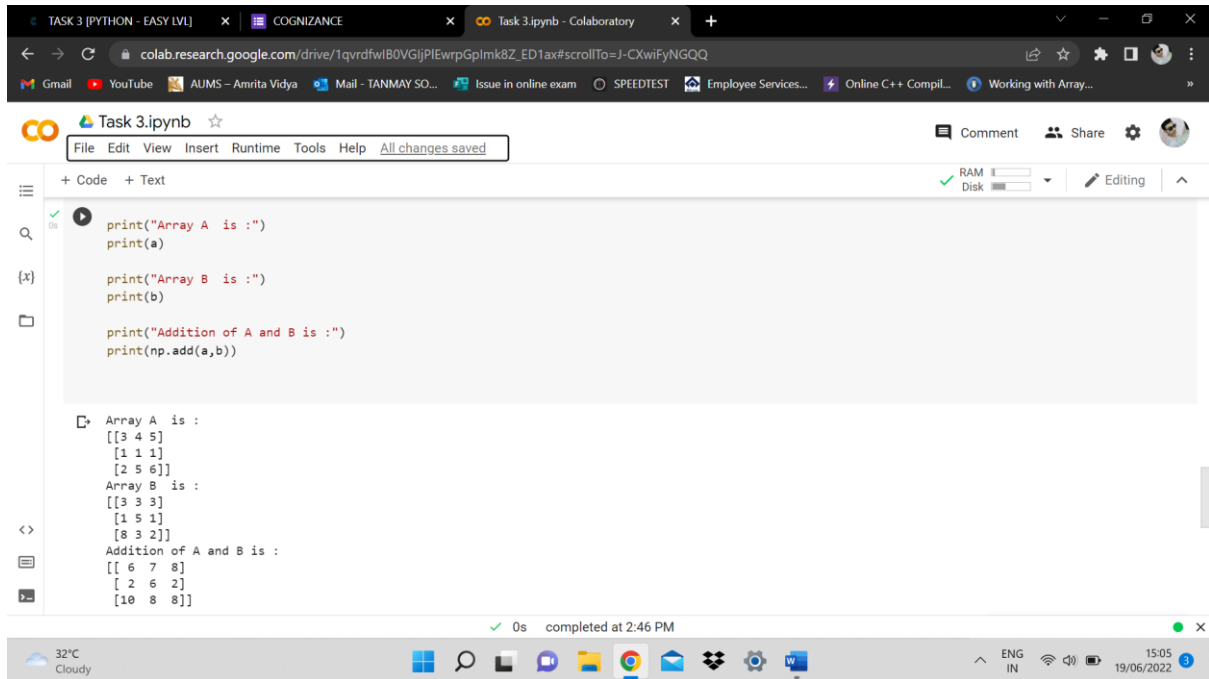
```
0      amrita
1      school
2         of
3   engineering
4     chennai
5      campus
dtype: object
output :
Amrita School Of Engineering Chennai Campus
```

The status bar at the bottom indicates that the code was completed at 2:46 PM.

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Question 5:

Addition of 2 numpy arrays



The screenshot shows a Jupyter Notebook interface in Google Colab. The notebook is titled "Task 3.ipynb" and has a menu bar with options: File, Edit, View, Insert, Runtime, Tools, Help, and All changes saved. The code cell contains the following Python code:

```
print("Array A is :")
print(a)

print("Array B is :")
print(b)

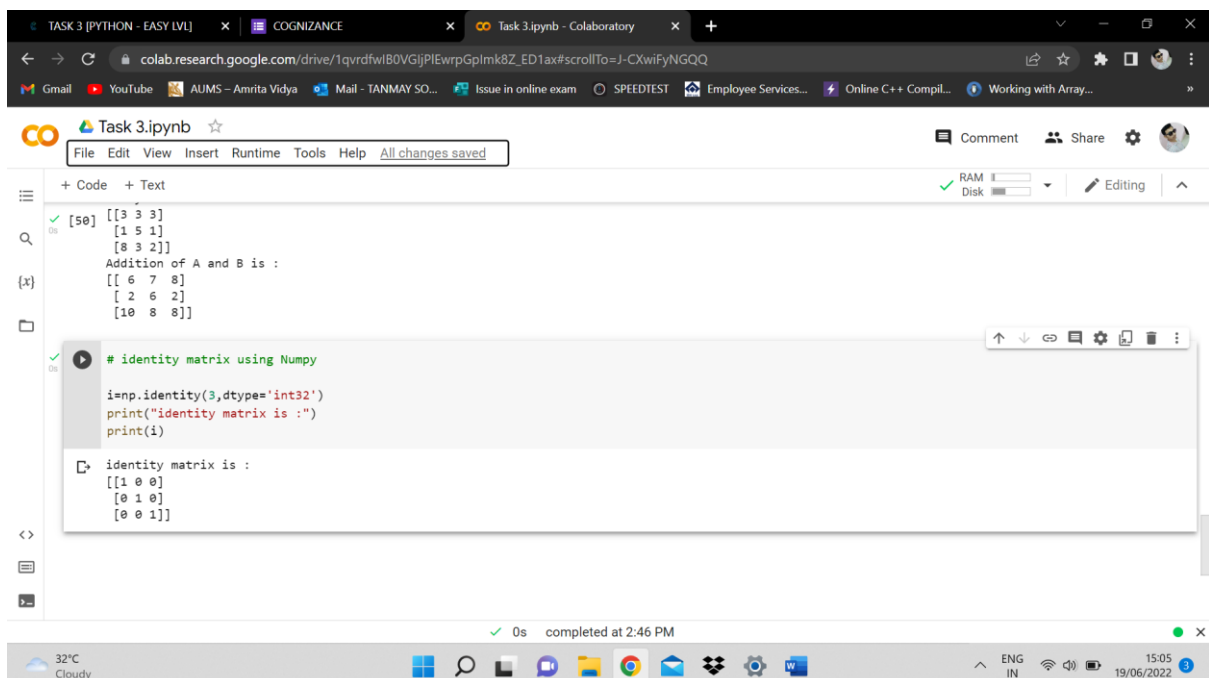
print("Addition of A and B is :")
print(np.add(a,b))
```

The output of the code is displayed below the code cell:

```
Array A is :
[[3 4 5]
 [1 1 1]
 [2 5 6]]
Array B is :
[[3 3 3]
 [1 5 1]
 [8 3 2]]
Addition of A and B is :
[[ 6  7  8]
 [ 2  6  2]
 [10  8  8]]
```

The notebook status bar at the bottom indicates "0s completed at 2:46 PM". The system tray at the bottom shows the date and time as 15:05 19/06/2022.

Identity matrix



The screenshot shows a Jupyter Notebook interface in Google Colab. The notebook is titled "Task 3.ipynb" and has a menu bar with options: File, Edit, View, Insert, Runtime, Tools, Help, and All changes saved. The code cell contains the following Python code:

```
# identity matrix using Numpy

i=np.identity(3,dtype='int32')
print("identity matrix is :")
print(i)
```

The output of the code is displayed below the code cell:

```
identity matrix is :
[[1 0 0]
 [0 1 0]
 [0 0 1]]
```

The notebook status bar at the bottom indicates "0s completed at 2:46 PM". The system tray at the bottom shows the date and time as 15:05 19/06/2022.

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