

1. Consider the given NumPy arrays **a** and **b**. What will be the value of **c** after the following code is executed?

1 分

```
1 import numpy as np
2
3 a = np.arange(8)
4 b = a[4:6]
5 b[:] = 40
6 c = a[4] + a[6]
```

46

2. Given the string **s** as shown below, which of the following expressions will be **True**?

1 分

```
1 import re
2 s = 'ABCAC'
```



```
1 bool(re.match('A', s)) == True
```

3. Consider a string **s**. We want to find all characters (other than A) which are followed by triple A, i.e., have AAA to the right. We don't want to include the triple A in the output and just want the character immediately preceding AAA . Complete the code given below that would output the required result.

1 分

```
1 def result():
2     s = 'ACAABAACAAABACDBADDDFSDDDFFSSSASDAFAAACBAAAFASD'
3
4     result = []
5     # complete the pattern below
6     pattern = '([A-Z]*?)(A{3})'
7     for item in re.finditer(pattern, s):
8         # identify the group number below.
9         result.append(item.group(1))
10
11     return result
12 result()
```

运行

重置

```
['ACAABAAC', 'BACDBADDDFSDDDFFSSSASDAF', 'CB']
```

```
def result():
    s = 'ACAABAACAAABACDBADDDFSDDDFFSSSASDAFAAACBAAAFASD'

    result = []
    # complete the pattern below
    pattern = '([A-Z]*?)(A{3})'
    for item in re.finditer(pattern, s):
        # identify the group number below.
        result.append(item.group(1))

    return result
```

4.

```
[>>> df
d      4
b      7
a     -5
c      3
dtype: int64
```

Consider the following 4 expressions regarding the above pandas Series **df**. All of them have the same value except one expression. Can you identify which one it is?

☒ `1 df.index[0]`

5.

1 分

```
[>>> s1
Mango      20
Strawberry 15
Blueberry  18
Vanilla    31
dtype: int64

[>>> s2
Strawberry 20
Vanilla    30
Banana     15
Mango      20
Plain      20
dtype: int64
```

Consider the two pandas Series objects shown above, representing the no. of items of different yogurt flavors that were sold in a day from two different stores, **s1** and **s2**. Which of the following statements is **True** regarding the Series **s3** defined below?

☐

`1 s3['Blueberry'] == s1['Blueberry']`

☒

`1 s3['Mango'] >= s1.add(s2, fill_value = 0)['Mango']`

☐

`1 s3['Blueberry'] == s1.add(s2, fill_value = 0)['Blueberry']`

6. In the following list of statements regarding a DataFrame df, one or more statements are correct. Can you identify all the correct statements? 1 分

☒ Every time we call df.set\_index(), the old index will be discarded.

☐ Every time we call df.set\_index(), the old index will be set as a new column.

☐ Every time we call df.reset\_index(), the old index will be discarded.

☒ Every time we call df.reset\_index(), the old index will be set as a new column.

7. Consider the Series object S defined below. Which of the following is an **incorrect** way to slice S such that we obtain all data points corresponding to the indices 'b', 'c', and 'd'? 1 分

1 `S = pd.Series(np.arange(5), index=['a', 'b', 'c', 'd', 'e'])`



1 `S['b':'e']`



1 `S[['b', 'c', 'd']]`

8. 1 分

```
>>> df
   a  b  c
R1  5  6  20
R2  5  82 28
R3  71 31 92
R4  67 37 49
```

Consider the DataFrame df shown above with indexes 'R1', 'R2', 'R3', and 'R4'. In the following code, a new DataFrame df\_new is created using df. What will be the value of **df\_new[1]** after the below code is executed?

```
1 f = lambda x: x.max() + x.min()
2 df_new = df.apply(f)
```

88

Rank_Level	mean					amax				
	First Tier Top University	Other Top University	Second Tier Top University	Third Tier Top University	All	First Tier Top University	Other Top University	Second Tier Top University	Third Tier Top University	All
country										
Argentina	NaN	44.672857	NaN	NaN	44.672857	NaN	45.66	NaN	NaN	45.66
Australia	47.9425	44.645750	49.2425	47.285000	45.825517	51.61	45.97	50.40	47.47	51.61
Austria	NaN	44.864286	NaN	47.066667	45.139583	NaN	46.29	NaN	47.78	47.78
Belgium	51.8750	45.081000	49.0840	46.746667	47.011000	52.03	46.21	49.73	47.14	52.03
Brazil	NaN	44.499706	49.5650	NaN	44.781111	NaN	46.08	49.82	NaN	49.82

Consider the DataFrame named `new_df` shown above. Which of the following expressions will output the result (showing the head of a DataFrame) below?

country	Argentina	Australia	Austria	Belgium	Brazil	Bulgaria	Canada	Chile	China	Colombia	...	Switzerland	Taiwan	Thai
Rank_Level														
mean	First Tier Top University	NaN	47.942500	NaN	51.875000	NaN	NaN	53.633846	NaN	53.592500	NaN	...	54.005000	54.210000
Other Top University	44.672857	44.645750	44.864286	45.081000	44.499706	44.335	44.760541	44.7675	44.564267	44.4325	...	44.625000	44.476667	44.8
Second Tier Top University	NaN	49.242500	NaN	49.084000	49.565000	NaN	49.218182	NaN	47.868000	NaN	...	48.184000	NaN	
Third Tier Top University	NaN	47.285000	47.066667	46.746667	NaN	NaN	46.826364	NaN	46.926250	NaN	...	47.930000	47.065000	46.5
All	44.672857	45.825517	45.139583	47.011000	44.781111	44.335	47.359306	44.7675	44.992575	44.4325	...	51.208846	45.012391	45.1

☒ `new_df.stack()`

	Item	Store	Quantity sold
0	item_1	A	10.0
1	item_1	B	20.0
2	item_1	C	NaN
3	item_2	A	5.0
4	item_2	B	10.0
5	item_2	C	15.0

Consider the DataFrame `df` shown above. What will be the output (rounded to the nearest integer) when the following code related to `df` is executed:

```
1 df.groupby('Item').sum().iloc[0]['Quantity sold']
```

30.0