Q1

For the following code, which of the following statements will **not** return True?

```
import pandas as pd

sdata = {'Ohio': 35000, 'Texas': 71000, 'Oregon': 16000, 'Utah': 5000}
obj1 = pd.Series(sdata)
states = ['California', 'Ohio', 'Oregon', 'Texas']
obj2 = pd.Series(sdata, index=states)
obj3 = pd.isnull(obj2)
```

- ○ `obj3['California']`
- ○ `x = obj2['California']`
  `obj2['California'] != x`
- ◉ `obj2['California'] == None`
- ○ `import math`
  `math.isnan(obj2['California'])`

Q2

```
import pandas as pd
d = {
    '1': 'Alice',
    '2': 'Bob',
    '3': 'Rita',
    '4': 'Molly',
    '5': 'Ryan'
}
S = pd.Series(d)
```

In the above python code, the keys of the dictionary `d` represent student ranks and the value for each key is a student name. Which of the following can be used to extract rows with student ranks that are lower than 3?

- ○ `S.loc[0:3]`
- ◉ `S.iloc[0:2]`
- ○ `S.loc[0:2]`
- ○ `S.iloc[0:3]`

Q3

Suppose we have a DataFrame named `df`. We want to change the original DataFrame `df` in a way that all the column names are cast to upper case. Which of the following expressions is **incorrect** to perform the same?

- ◉ `df.rename(mapper = lambda x: x.upper(), axis = 1)`
- ○ `df.rename(mapper = lambda x: x.upper(), axis = 1, inplace = True)`
- ○ `df = df.rename(mapper = lambda x: x.upper(), axis = 'column')`
- ○ `df = df.rename(mapper = lambda x: x.upper(), axis = 1)`

Q4

Serial No.	gre score	toefl score
1	337	118
2	324	107
3	316	104
4	322	110
5	314	103

For the given DataFrame `df` we want to keep only the records with a `toefl score` greater than 105. Which of the following will **not** work?

- ○ `df.where(df['toefl score'] > 105).dropna()`
- ○ `df[df['toefl score'] > 105]`
- ◉ `df.where(df['toefl score'] > 105)`
- ○ All of these will work

Q5

Which of the following can be used to create a DataFrame in Pandas?

- ○ Pandas Series object
- ○ 2D ndarray
- ○ Python dict
- ◉ All of the above

Q6

Which of the following is an **incorrect** way to `drop` entries from the Pandas DataFrame named `df` shown below?

	one	two	three	four
Ohio	0	1	2	3
Colorado	4	5	6	7
Utah	8	9	10	11
New York	12	13	14	15

- ○ `df.drop('one', axis = 1)`
- ○ `df.drop(['Utah', 'Colorado'])`
- ○ `df.drop('Ohio')`
- ◉ `df.drop('two')`

Q7

For the Series `s1` and `s2` defined below, which of the following statements **will give an error**?

```
import pandas as pd
s1 = pd.Series({1: 'Alice', 2: 'Jack', 3: 'Molly'})
s2 = pd.Series({'Alice': 1, 'Jack': 2, 'Molly': 3})
```

- ○ `s2[1]`
- ◉ `s2.loc[1]`
- ○ `s1.loc[1]`
- ○ `s2.iloc[1]`

Q8

Which of the following statements is **incorrect**?

- ◉ If `s` and `s1` are two pd.Series objects, we cannot use `s.append(s1)` to directly append `s1` to the existing series `s`
- ○ We can use `s.iteritems()` on a `pd.Series` object `s` to iterate on it.
- ○ If `s` is a `pd.Series` object, then we can use `s.loc[label]` to get all data where the index is equal to label.
- ○ `loc` and `iloc` are two useful and commonly used Pandas methods.

Q9

Serial No.	gre score	toefl score
1	337	118
2	324	107
3	316	104
4	322	110
5	314	103

For the given DataFrame `df` shown above, we want to get all records with a `toefl score` greater than 105 but smaller than 115. Which of the following expressions is **incorrect** to perform the same?

- ○ `df[df['toefl score'].gt(105) & df['toefl score'].lt(115)]`
- ◉ `(df['toefl score'] > 105) & (df['toefl score'] < 115)`
- ○ `df[(df['toefl score'] > 105) & (df['toefl score'] < 115)]`
- ○ `df[(df['toefl'].isin(range(106, 115)))]`

```
第四个选项有小问题，key应该是'toefl score'
df[(df['toefl score'].isin(range(106,115)))]
```

Q10

Which of the following is the correct way to extract all information related to the student named `Alice` from the DataFrame `df` given below:

(Major)	Name	Age	Gender
Mathematics	Alice	20	F
Sociology	Jack	22	M

- ○ `df.iloc['Mathematics']`
- ○ `df['Alice']`
- ○ `df['Mathematics']`
- ◉ `df.T['Mathematics']`