NPTEL – PYTHON FOR DATA SCIENCE

ASSIGNMENT 1 – SOLUTION

1) Which of the following is not a valid naming convention for variables in Python?

Solution: d) The name must start with a number

Justification:

While naming the variable, the name cannot start with a number. It should either start with an alphabet or an underscore. When you start with a number for naming a variable it will throw a SyntaxError

In [9]:

```
2_hello=5 # Example
```

```
  File "<ipython-input-9-9f3d6cce110e>", line 1
    2_hello=5 # Example
     ^
SyntaxError: invalid token
```

2. Which of the following is/are valid naming convention(s) in Python?

Solution: a), b), c), d)

Justification:

The commonly accepted case types for naming conventions are lower camel case, upper camel case, snake case, macro case.

In [10]:

```
ageEmp = 45   # Lower camel case
AgeEmp = 45   # Upper camel case
age_emp = 45  # Snake case
AGE_EMP = 45  # Macro case
```

3. Which of the following is true about the keywords in Python?

Solution: a)

Justification:

All the Python keywords except True, False and None are in lowercase and they must be written as they are.

4. Which of the following coercions are accepted for the datatype ‘String’ for the variable my_salary as defined below?

"my_salary" = 50000

Solution: a), b), c), d)

Justification:

In Python, only few coercions are accepted. Coverting an integer enclosed between quotes to other datatypes like string, complex, float, bool is possible. However, if the value enclosed within the quotes is a string then not allconversions are accepted.

In [11]:

```
my_salary = "50000"
my_salary = complex(my_salary)
print(my_salary)
```

```
(50000+0j)
```

In [12]:

```
my_salary = "50000"
my_salary = int(my_salary)
print(my_salary)
```

```
50000
```

In [13]:

```
my_salary = "50000"
my_salary = float(my_salary)
print(my_salary)
```

```
50000.0
```

In [14]:

```
my_salary = "50000"
my_salary = bool(my_salary)
print(my_salary)
```

```
True
```

5. Which of the following is not accepted as a representation of complex numbers in Python?

Solution:c) k = 2 + 3l

Justification:

l (or L) stands for long, a SyntaxError will be thrown when you execute this. Hence 2+3l is not accespted as a representation of complex numbers in Python

In [15]:

```
k = 2 + 3j
```

In [16]:

```
k = complex(2, 3)
```

In [17]:

```
k=2+3l
```

```
  File "<ipython-input-17-aea9882e7dcb>", line 1
    k=2+3l
       ^
SyntaxError: invalid syntax
```

In [18]:

```
k = 2 + 3J
```

6. Which of the following command return a Unicode string representing the current working directory?

Solution: b)

Justification:

os.getcwd() return a unicode string representing the current working directory

In [19]:

```
import os
os.getcwd()
```

Out[19]:

```
'C:\\Users\\GITAA\\Desktop\\Assignment1'
```

7. Which of the following command is used to change the current working directory to the specified path?

Solution: a)

Justification:

os.chdir() is used to change the current working directory to the specified path

In [20]:

```
os.chdir('E:\WORK')  # Changing the working directory
os.getcwd()          # Getting the current working directory
```

Out[20]:

```
'E:\\WORK'
```

8. If A = 16 and B = 15, then the value of 'X' after evaluating the following expression is__

X = A % B // A

Solution: b)

Justification:

The expression is evaluated as: 16%15//16, which is equal to 1//16, which results in 0

In [21]:

```
A=16
B=15
A%B//A
```

Out[21]:

```
0
```

9. Which of the following symbols represent a bitwise OR operator?

Solution: c) |

Justification:

Bitwise or operator is represented by | and it returns 1 if either of the bit is 1 else 0.

10. What will be the output of the following Python expression if x=15 and y=12?

Solution: a) 12

Justification:

The symbol '&' represents bitwise AND. This gives 1 if both the bits are equal to 1, else it gives 0. The binary form of 15 is 1111 and that of 12 is 1100. Hence on performing the bitwise AND operation, we get 1100, which is equal to 12.

In [22]:

```
x=15
y=12
x&y
```

Out[22]:

12

11. Which of the following is NOT TRUE about bitwise operators?

Solution: c)

Justification:

Python bitwise operators take one to two operands, and operates on it/them bit by bit, instead of whole.

12. What is the output of the following command, 7//2

Solution: b) 3

Justification:

In [23]:

```
7//2
```

Out[23]:

3

13. Which of the following is/are valid assignment operators in Python?

Solution: a), b), c), d)

Justification:

The following are the assignment operators that are used to assign the values to the variables =, +=, -=, *=

1. = : Assign values from right side operands to left side operand
2. += : Adds right operand to left operand and stores result on left side operand (a=a+b)
3. -= : Subtracts right operand from left operand and stores result on left side operand (a=a-b)
4. *= : Multiplies right operand from left operand and stores result on left side operand (a=a*b)

14. In Spyder, the command to clear the variable explorer is

Solution: a)

Justification:

At the IPython prompt, %reset clears the variable explorer. It's like you're starting up the shell again.

15. Which of the following is TRUE about modules and Python scripts?

Solution: c)

Justification:

- A plain text file containing Python code that is intended to be directly executed by the user is usually called script
- On the other hand, a plain text file, which contains Python code that is designed to be imported and used from another Python file, is called module

16. An entity that can be different assigned different values is called__

Solution: c)

Justification:

Variable is an identifier containing a known information

17. Shortcut key to run the whole script file in Spyder is

Solution: b)

Justification:

- F9 is the shortcut key to run the selection or the current line
- F5 is the shortcut key to run the whole script file in spyder
- F6 is the shortcut key to run against last file

18. Command to delete the variables ‘a’& ‘b’ from the environment is___

Solution: c)

Justification:

del a,b command is used to delete the variables ‘a’ & ‘b’ from the environment.

19. Which of the following inbuilt functions attempts to return a list of valid attributes for that object?

Solution: d) dir

Justification:

dir() is an inbuild function attempt to return a list of valid attributes for that object

20. In Spyder, % reset removes all the variables from the environment and clears all the output from the console.

Solution:

b) False

Justification:

In Spyder, %reset removes all the variables from the environment but it will not clear the output from the console.

21. Multiple lines cannot be commented in Spyder

Solution: b)

Justification:

Multiple lines can be commented in Spyder using docstrings or using # in multiple lines

22. Command lines executed in the console cannot be saved.

Solution: a)

Justification:

Command lines executed in the console cannot be saved. But the codes written in the script window can be saved as a python file.

23. Which of the following command is invalid?

Solution: d)

Justification:

In [24]:

```
float('inf')
```

Out[24]:

```
inf
```

In [25]:

```
float('nan')
```

Out[25]:

```
nan
```

In [26]:

```
float('98'+'85')
```

Out[26]:

```
9885.0
```

In [27]:

```
float('73+64')
```

```
---------------------------------------------------------------------------
ValueError                                Traceback (most recent call last)
<ipython-input-27-dc840f72378d> in <module>
----> 1 float('73+64')

ValueError: could not convert string to float: '73+64'
```