NPTEL PYTHON FOR DATA SCIENCE – JULY 2022
ASSIGNMENT -1: SOLUTIONS

1) **Answer: d)**

Solution: Since Python checks for the datatype of variables during runtime, a TypeError is raised when two operands having inconsistent data types are added

```
In [1]:
num1 = 12
num2 = "58"
print(num1 + num2)
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-1-931dce8786a6> in <module>
      1 num1 = 12
      2 num2 = "58"
----> 3 print(num1 + num2)

TypeError: unsupported operand type(s) for +: 'int' and 'str'
```

2) **Answer: b)**

Solution: '/' divides left operand by the right one and results in a floating point quotient, regardless of any of the operands being Float or integer.

'//' - floor division returns float if any of the operands is a floating point otherwise if both the operands are integers the result is an int.

3) **Answer: b)**

Solution:

```
In [5]:
a = 5
b = 3
print(bin(a))
print(bin(b))
print(a or b) # option a)
print(a and b)
```

```
0b101
0b11
5
3
```

```
In [6]:
print(a | b) # option b)
print(a & b)
```

```
7
1
```

```
In [7]:
print(not b) # option c)
print(b and a)
```

```
False
5
```

```
In [8]:
print(a and b) # option d)
print(a or b)
```

```
3
5
```

4) **Answer: b)**

Solution: When using the floor division operator(//), if the result is negative, then the result is rounded down to the next smallest (large negative) integer.

```
In [14]:
print(-5 // 4)
-2
```

5) **Answer: c)**

Solution: ***float()*** is used to convert the data type of a variable to **float**.

6) **Answer: a) and c)**

Solution:

```
In [27]:
1_variable = 10
File "<ipython-input-27-804347e003d3>", line 1
  1_variable = 10
  ^
SyntaxError: invalid token
```

```
In [28]:
variable_1 = 10
```

```
In [29]:
Variable_* = 1
File "<ipython-input-29-da03d3a24901>", line 1
variable_* = 10
         ^
SyntaxError: invalid syntax
```

```
In [30]:
variable1 = 10
```

7) **Answer : a)**

Solution: The boolean values should start with a capital letter or can be enclosed in quotes to be a valid declaration

8) **Answer: b)**

Solution:

```
x = 4
y = 11
p = 5.0
ans = x ** (y % p)
print(ans)
```

```
4.0
```

9) **Answer: b)**

Solution:

```
num = 20.5
z = 3
result = 2 + z * 3 + num // z
print(result)
```

```
17.0
```

10) Answer : b)

Solution: Pandas is a Python library used for data manipulation and analysis, It offers data structures and operations for manipulating numerical tables