ASSIGNMENT 1
PYTHON FOR DATA SCIENCE

2 Questions for 1 Mark Each

1) What is the data type of the value True in Python?
   a) int
   b) bool
   c) str
   d) float
Answer: b) bool

2) Which operator is used for exponentiation in Python?
   a) ^
   b) **
   c) %
   d) //
 Answer: b) **

2 Questions for 4 Marks Each

1. **Question:** Explain the difference between mutable and immutable data types in Python with examples.
    Answer:
    o   Mutable data types are those whose values can be changed after creation, for example, lists and dictionaries. Example: `my_list = [1, 2]; my_list = 3` changes the first element.
    o   Immutable data types are those whose values cannot be changed once created. Examples include strings, tuples, and integers. Example: `my_str = "hello";` trying to change `my_str` causes an error.
2. **Question:** Write a Python code snippet demonstrating variable assignment, type-checking, and type-casting. Explain each step.
    Answer:

```python
x = 10              # Assign integer value 10 to variable x
print(type(x))       # Type-checking, outputs: <class 'int'>
y = float(x)         # Type-casting integer x to float and assigning to y
print(type(y))       # Outputs: <class 'float'>
```