

# Python Basics Assignment

Variables, input/output, operators and built-in functions

Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

60 minutes

40 marks

**Allowed:** variables, arithmetic/assignment/logical operators, print, input, int, float, abs and len.

## Instructions

- Answer every question.
- Do not use conditions or loops.
- Write output exactly as Python displays it.
- In a trace table, add one row after every executed statement.

## Assignment map

- Section A: predict the output — 8 marks
- Section B: trace the program — 12 marks
- Section C: write basic programs — 20 marks

## Section A — Write the Output

1.

[1 mark]

```
a = 7
b = 3
print(a + b * 2)
```

OUTPUT

2.

[1 mark]

```
number = 25
print(number // 4)
print(number % 4)
print(2 ** 3)
```

OUTPUT

3.

[1 mark]

```
score = 10
score += 5
score *= 2
score -= 4
print(score)
```

OUTPUT

4.

[1 mark]

```
first = "Py"
second = "thon"
word = first + second
print(word)
print(len(word))
```

OUTPUT

5.

[1 mark]

```
value = int("14")
print(value + 6)
print(value / 4)
```

OUTPUT

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6.

[1 mark]

```
temperature = -7.5
print(abs(temperature))
print(float(5))
```

OUTPUT

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7.

[1 mark]

```
p = True
q = False
print(p and q)
print(p or q)
print(not p)
```

OUTPUT

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8.

[1 mark]

```
x = 5
y = x
x += 3
y *= 2
print(x)
print(y)
```

OUTPUT

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Section B — Draw and Complete Trace Tables

Record each variable's value **after** the statement in that row runs. Write a dash where a variable has not been created yet.

9. Trace this program. [3 marks]

```
number = 6
result = number + 4
number *= 2
result += number
print(result)
```

| Statement executed | number | result | Output |
|--------------------|--------|--------|--------|
|                    |        |        |        |
|                    |        |        |        |
|                    |        |        |        |
|                    |        |        |        |
|                    |        |        |        |

10. Trace this program. [3 marks]

```
a = 17
b = 5
remainder = a % b
a = a // b
b += remainder
print(a)
print(b)
```

| Statement executed | a | b | remainder | Output |
|--------------------|---|---|-----------|--------|
|                    |   |   |           |        |
|                    |   |   |           |        |
|                    |   |   |           |        |
|                    |   |   |           |        |
|                    |   |   |           |        |
|                    |   |   |           |        |
|                    |   |   |           |        |

11. Assume the user enters Python.

[3 marks]

```
word = input("Enter a word: ")
letters = len(word)
points = letters * 3
points += 2
print(letters)
print(points)
```

| Statement executed | word | letters | points | Output |
|--------------------|------|---------|--------|--------|
|                    |      |         |        |        |
|                    |      |         |        |        |
|                    |      |         |        |        |
|                    |      |         |        |        |
|                    |      |         |        |        |
|                    |      |         |        |        |

12. Trace this program.

[3 marks]

```
p = True
q = False
result = p and not q
p = q or result
print(p)
print(result)
```

| Statement executed | p | q | result | Output |
|--------------------|---|---|--------|--------|
|                    |   |   |        |        |
|                    |   |   |        |        |
|                    |   |   |        |        |
|                    |   |   |        |        |
|                    |   |   |        |        |
|                    |   |   |        |        |

## Section C — Write Basic Programs

Write complete Python programs. Use only the concepts listed on page 1. You may continue on the back if you need more space.

### 13. Personal Greeting

[4 marks]

Ask for the user's name and favourite subject. Print a greeting like:

```
Hello, Aisha.  
You enjoy Science.
```

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### 14. Mini Calculator

[4 marks]

Accept two integers. Print their sum, difference, product, quotient using / , and remainder using %.  
Assume the second number is not zero.

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**15. Rectangle Calculator****[4 marks]**

Accept the length and breadth as decimal numbers. Calculate and print the area and perimeter.

```
area = length * breadth
perimeter = 2 * (length + breadth)
```

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**16. Shopping Discount****[4 marks]**

Accept an item's price as a decimal number. Calculate a fixed discount of 15%. Print the discount amount and the final price. No condition is required.

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**17. Number and Text Analyser****[4 marks]**

Accept two decimal numbers and print their absolute difference using `abs()`. Then ask for a word and print its number of characters using `len()`.

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**Before submitting:** check brackets and quotation marks; check variable names; check that numeric input is converted with `int()` or `float()`; run each program once.