

IT5001—Software Development Fundamentals
AY21/22 Semester 2 Quiz 1

Rules:

- You are allowed **ONE** A4-sized cheat sheet, double-sided, printed or written.
- You are allowed **ONE** blank sheet of A4 paper (in addition to your cheat sheet) for drafts.
- You **cannot** refer to any another document or search for information online.
- You **cannot** access any files on your computer, including .py files.
- You **cannot** use any other electronic devices, including smart watches.
- You **cannot** use other tools or IDE, such as IDLE, pycharm, etc. to help you.
- You **cannot** communicate with anyone throughout the quiz.

This document contains **4 printed pages**.

You have **30 minutes** to complete the quiz.

There are **12 questions**.

Section	Awarded	Maximum
Expression Evaluation		56
Program Tracing		24
Code Comprehension		20
Total		100

(Solutions are appended to the end of this document).

Expression Evaluation [7 marks each]

Without using IDLE, determine the results from evaluating the following Python expressions and select the correct option.

1) `str(5 * 3) + '1'`

- A. `'16'`
- B. `'151'`
- C. `'556'`
- D. `'5551'`
- E. Evaluating this expression yields an error

2) `float('01' * 2)`

- A. `'02'`
- B. `'101'`
- C. `'0101'`
- D. 2
- E. 101.0

3) `'abcbc' - 'bc'`

- A. `''` (empty string)
- B. `'a'`
- C. `'abc'`
- D. `'abcbc'`
- E. Evaluating this expression yields an error

4) `6 // -4 * 2`

- A. -4
- B. -3
- C. -2
- D. 3.0
- E. Evaluating this expression yields an error

5) `range(1, 10, 2)[3]`

- A. 4
- B. 5
- C. 6
- D. 7
- E. Evaluating this expression yields an error

6) `'abde1902'[1:7:2][2][0]`

- A. `''` (empty string)
- B. `'1'`
- C. `'9'`
- D. `'e'`
- E. Evaluating this expression yields an `IndexError`

7) `bool('int(0)')`

- A. `True`
- B. `False`

8) `'xyz' < 'abcde'`

- A. `True`
- B. `False`

(proceed to the next page...)

Program Tracing [8 marks each]

In each of the following questions in this section, you are given a complete Python program stored in a .py file. Determine the output (if any) of the program upon execution, and choose the correct option.

9)

```
def f(x):  
    if x > 10:  
        return 'a'  
    elif x < 5:  
        return 'b'  
    elif x == 3:  
        return 'c'  
    elif x == 11:  
        return 'd'  
print(f(3) + f(11) + f(6))
```

- A. ba
- B. ca
- C. bd
- D. cd
- E. Executing this program yields an error

10)

```
def g(x):  
    n = 10  
    for i in range(0, x, 2):  
        n += 1  
    return n  
  
print(g(9))
```

- A. 14
- B. 15
- C. 16
- D. 17
- E. 18
- F. Executing this program yields an error

11)

```
s = '1234567890'  
x = 0  
for i in range(5):  
    x %= 10  
    x += int(s[x])  
print(x)
```

- A. 3
- B. 4
- C. 5
- D. 7
- E. 11
- F. None of the above

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Code Comprehension [20 marks]

12) You are given the following program.

```
def f(n):  
    k = 1  
    for i in range(2, n):  
        if n % i == 0:  
            k = i  
    return k
```

Assuming that the argument to n is always an integer that is strictly larger than 1, describe the function f ; basically, what does $f(n)$ do?

Your answer has to be concise, correct and complete to gain full credit.

– End of Quiz –

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Quiz Solutions

Expression Evaluation. 1) B; 2) E; 3) E; 4) A; 5) D; 6) C; 7) A; 8) B.

Program Tracing. 9) E; 10) B; 11) E;

Code Comprehension. 12) $f(n)$ returns the largest integer divisor of n .