Logical thinking and Python
(LOGIC411)

Formative Assessment 2

2023

Logical thinking and Python (LOGIC411) – FA2

Date: 07 December 2023
Duration: 120 minutes
Total marks (Section A): 40
Total marks (Section B): 40
Grand Total: 80

Name:

Date:

Instructions:

- Read each question carefully and consider the mark allocation prior to answering.
- Ensure to answer all questions.
- Submit quiz only once all questions have been answered.
- There are three (2) sections with a total number of 40 questions.
- Section A: Multiple choice (20 Questions) – 40 marks
- Section B: Short description questions (20 Questions) – 40 marks
- For final submission include the Pre-Assessment form, Declaration of Authenticity, and Formative Assessment test in a single zipped document as ***yourname_LOGIC411_FA2.zip***

Section A: Multiple choice questions – 40 marks

1. **What is the purpose of the elif statement in Python?** **(2)**
   a) To create a loop
   b) To check multiple conditions in sequence
   c) To define a function

2. **How do you open and read the contents of a file in Python?** **(2)**

   a) a) file.read()
   b) b) open(file, 'r')
   c) c) read(file)

3. **Explain the difference between == and is when comparing variables in Python.** **(2)**

   a) Both are used for value comparison
   b) == is for value comparison, is is for identity comparison
   c) is is for value comparison, == is for identity comparison

4. **What is the purpose of indentation in Python code?** **(2)**

   a) Aesthetic formatting
   b) To indicate code blocks and control flow
   c) Mandatory for all code

5. **How do you check the length of a list in Python?** **(2)**

   a) length(list)
   b) list.length()
   c) len(list)

6. **Explain the concept of list comprehension in Python.** **(2)**

   a) Creating lists with comprehensible names
   b) A concise way to create lists using expressions
   c) Comprehensively documenting lists

7. **How do you define a class in Python?** **(2)**

   a) class MyClass: pass
   b) def MyClass(): pass
   c) class = MyClass()

8. **What is the purpose of the return statement in a function?** **(2)**

   a) To exit the program
   b) To return a value from a function
   c) To print a value to the console

9. **Describe the difference between local and global variables in Python.** **(2)**

   a) Global variables are accessible only in functions
   b) Local variables are declared outside of functions
   c) Local variables are limited to a specific scope, while global variables are accessible throughout the program

10. **How do you check if a key is present in a dictionary?** **(2)**

    a) key in dictionary
    b) contains(dictionary, key)
    c) dictionary.key()

11. What is the purpose of the import statement in Python? **(2)**

    a) To export code from a module

    b) To include external modules or libraries

    c) To create aliases for variables

12. How do you handle exceptions in Python? **(2)**

    a) Using ignore statement

    b) Using try, catch, finally blocks

    c) Using throw and catch statements

13. Describe the difference between shallow and deep copy in Python. **(2)**

    a) Shallow copy duplicates only the outermost layer, while deep copy duplicates all nested layers

    b) Shallow copy duplicates all layers, while deep copy duplicates only the outermost layer

    c) There is no difference between shallow and deep copy

14. What is the purpose of the __init__ method in a Python class? **(2)**

    a) To initialize the class object

    b) To create a new instance of the class

    c) To import external modules

15. How do you format strings in Python using the % operator? **(2)**

    a) format_string % (value1, value2)

    b) string_format % value

    c) "%s %d" % (string, number)

16. What is the purpose of the os.path.join() method in Python? **(2)**

    a) To join two strings
    b) To concatenate paths in a platform-independent way
    c) To create a new directory

17. Explain the concept of a generator in Python and how it differs from a regular function. **(2)**

    a) Generators create infinite loops
    b) Generators are functions that return an iterable sequence of items one at a time
    c) Generators are functions that return a single value

18. How do you create a virtual environment in Python? **(2)**

    a) create venv
    b) python venv create
    c) python -m venv env

19. What is the purpose of the __doc__ attribute in Python? **(2)**

    a) To store documentation strings
    b) To define document structure
    c) To access system documentation

20. How can you check if a string starts or ends with a specific substring in Python? **(2)**

    a) string.starts_with(substring) and string.ends_with(substring)
    b) string.startswith(substring) and string.endswith(substring)
    c) substring.starts(string) and substring.ends(string)

End of section A.

Section B: Short description questions – 40 marks

1. How do you format strings in Python using the % operator? **(2)**

2. What is the purpose of the format() method for strings in Python? **(2)**

3. How do you define a constant variable in Python? **(2)**

4. Explain the difference between instance variables and class variables. **(2)**

5. What is the purpose of the __init__ method in a Python class? **(2)**

6. **How can you check the type of a variable in Python?**   **(2)**

7. **Describe the use of the with statement in Python and provide an example.**   **(2)**

8. **How do you iterate over the elements of a dictionary in Python?**   **(2)**

9. **What is the purpose of the global keyword in Python?**   **(2)**

10. **Explain the concept of a generator in Python and how it differs from a regular function.**   **(2)**

11. How can you reverse a list in Python? **(2)**

12. What is the purpose of the pop() method for lists? **(2)**

13. How do you convert a string to a list in Python? **(2)**

14. Describe the purpose of the filter() function in Python. **(2)**

15. What is the purpose of the super() function in Python? **(2)**

16. **How can you check if a string starts or ends with a specific substring in Python?** **(2)**

17. **Explain the concept of a module in Python and how to create a custom module.** **(2)**

18. **How do you handle multiple exceptions in a single except block?** **(2)**

19. **Describe the purpose of the try, except, else, and finally blocks in Python.** **(2)**

20. **How can you check if a file exists in Python before trying to open it?** **(2)**

End of section B

Section A: **/40**
Section B: **/40**
Total: **/80**

End of paper.