THE PAPUA NEW GUINEA UNIVERSITY OF TECHNOLOGY

DEPARTMENT OF MATHEMATICS & COMPUTER SCIENCE

FIRST SEMESTER EXAMINATIONS - 2022

SECOND YEAR BACHELOR OF SCIENCE IN APPLIED PHYSICS & BACHELOR OF ENGINEERING IN BIOMEDICAL ENGINEERING

CS214 – INTRODUCTION TO PROGRAMMING

TIME ALLOWED: 3 HOURS

INFORMATION FOR CANDIDATES

1. Write your name and student number clearly on the front of the examination answer booklet.

2. You have 10 minutes to read this paper. You must not begin writing during this time.

3. There are three parts to this exam:

    Part A: multiple choice questions; [10 marks]

    Part B: short answer questions; [30 marks]

    Part C: working out type Questions; [30 marks]

4. All answers must be written in examination booklets only. No other written material will be accepted.

5. Start the answer for each question/part on a **new** page. Do **not** use red ink.

6. Notes and textbooks are not allowed in the examination room. All mobile phones and electronic/recording devices must be switched off during the examination.

7. Scientific and business calculators are allowed in the examination room.

MARKING SCHEME

Marks are indicated at the beginning of each question. They total **[70]**.

All questions covered are based on the Python Programming Language unless otherwise stated. Label all your answers correctly and must be written inside examination booklet.

Part A (Questions 1 – 10) Multiple Choice Questions (1 mark each = 10 marks).

Question 1
A user runs this code snippet below and enters four (4) as input. What data type is the variable whattyp?

```
Whttyp = input("enter any number:  ")
```

A. string
B. integer
C. float
D. boolean

Question 2
What is the output of the following code:

```
str1 = "Welcome to "
str2 = "my\n world"

print(str1)
print(str2)
```

A. Welcome to my world
B. Welcome to
   my world
C. Welcome to
   my
   world
D. Welcome to
   My   World

Question 3
What is the index of the first element of a string?

A. 1
B. -1
C. 0
D. Both (a) and (b)

Question 4

What is the output of the following:

```
str1 = "hello John Doe"
print(str1[-1])
print(str1[9])
```

A. e
   n
B. h
   D
C. h
   n
D. e
   e

Question 5

The following code is run in the python shell. Determine the output of this code snippet:

```
>>>30 % 7
```

A. 1
B. 2
C. 3
D. 4

Question 6

Determine the output for the following if statement:

```
g = input("enter any integer:  ")
f = "hello world"

if type(f) == str and type(g) == int:
        print("yes")
else:
        print("no")
```

A. yes
B. no
C. error message
D. a and c

Question 7
Consider this while loop:

```
num = 1
while num % 2 == 0:
        num += 2
        print(num)
print("hey")
```

determine the output when it is run?

A. Indefinite loop
B. Hey
C. error message
D. b and c

Question 8
How many iterations will this nested for loop go through:

```
for n in range(1, 4):
    for j in range(4, 7):
        print("n = ", n "and j = ", j)
```

A. 16
B. 6
C. 9
D. 12

Question 9
What is the main difference between a list data structure and a tuple data structure?
A. Lists are mutable while tuples are immutable.
B. Tuples are mutable while lists are immutable.
C. Lists can be iterated through while tuples cannot be iterated through.
D. b and c

Question 10
```
Mylst = ["h", "e", "l", "l", "o", "w", "o", "r", "l", "d", ]
```
From the list declaration above Choose the code that will print out the word "hell".

A. print(Mylst(1:5))
B. print(Mylst(1:5-1))
C. print(Mylst(0:5))
D. print(Mylst(:-6))

Part B (Question 11 -19) Short Answer Questions: (2 + 5 + 4 + 4 + 3 + 4 + 4 + 4 = 30 marks)

Question 11
What are the two different types of numeric data types in python?

Question 12
In python file handling, state the differences between write mode and append mode?

Question 13
A. What are the two different ways you can use + operator?
B. What happens when you run this script print("1" + 1) and why do you get that result?

Question 14
What is the difference between a runtime error and a syntax error?

Question 15
Executing Python in the interactive window can be described as a loop with three steps. What are these steps?

Question 16
Write down the output of this python script.

```
x = 5
y = 7
z = 3
def myfunc():
      x = 6
      y = 9
      z = x + y
      print("x + y  = ", z)

myfunc()
print(x + y + z)
```

Question 17
In python what are the four (4) different ways you can define a function?

Question 18
How does a while loop defer from a for loop?

Part C: (Question 19-20) long answer Question (10 + 20 = 30 marks).

Question 19
Write a code snippet to count number of lines, words and letters of a text file "mytxt.txt" (assume your python file and your text file are in the same folder/location).

Question 20
Design:
1. an algorithm;
2. flow chart, and;
3. write code;

that compares two numbers input by a user and displays the highest number.