Papua New Guinea University of Technology

Department of Mathematics & Computer Science

FIRST SEMESTER EXAMINATIONS – 2021

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

CS214 – INTRODUCTION TO PROGRAMMING

TIME ALLOWED: 3 HOURS

INFORMATION FOR CANDIDATES

1. Write your name and student ID 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 3 questions in this paper. Questions one (1) and Question (2) are short answer questions worth thirty (30) marks. Question three (3) is a long answer question worth twenty (20) marks. You should attempt ALL questions.

4. All answers must be written in the examination answer booklets provided. No other written material will be accepted.

5. Write out the question number clearly on the answer sheet beside each answer. Do not use red ink or pencil.

6. Notes and textbooks are not allowed in the examination room.

7. Mobile phones and other recording devices are not allowed in the examination room.

8. Scientific and Business Calculators are allowed in the Exam room.

Marks are indicated at the beginning of each question. The total is 60 Marks.

QUESTION 1. **[2 marks each = 20 Marks]**

(a) Write a statement to assign the value **24** to the variable name **day**.

(b) In a single assignment statement, assign the values **5, 10** and, **15** to the variable names **five, ten** and **fifteen.**

(c) In python, what is casting used for?

(d) Given **a = 24** and **b = 36**, what will be the output of the expression **a - = b**?

(e) What is the difference between a **for loop** and a **while loop** in python?

(f) Given the list **my_List = ["a", "b", "c", "d", "e"]** write a statement using negative indexing to print out the letter **"c".**

(g) What is the difference between a **function** and a **module**?

(h) In a control flow statement, what is the difference between the **break** and **continue** keywords?

(i) Name two of the four basic file related operations in python.

(j) Name two steps of the Program Development Life Cycle.

QUESTION 2. **[2 Marks each = 20 Marks]**

(a) Write out the output of the control flow statement below?

```
while I < 9:
      i += 1
      if i%2 == 1
            continue
      print(i)
```

(b) Write a **for loop** control flow statement to print out the numbers from five to ten (5-10). (use the range function)

(c) Write an **if statement** to check whether a person is eligible to vote or not. Eligible voting age is 18 and above. Program should accept age from the user. (User has to input his or her age for the program to check)

(d) Draw the flowchart of the program you've created for (Question 2c) above.

(e) The sentence stored in the file "face.txt" is ***This is the final exam.*** What is the output of the following code?

```
f = open("face.txt", "r")
Words = f.read(4)
While len(Words):
      print(Words)
f.close()
```

(f) Create or define a function that takes in **name** and **age** as parameters and prints out or returns a sentence introducing the person. (Output of the function should be something like: "hi, I am Jack and I am 23 years old").

(g) Using your name and age as arguments), write a statement to call the above (Question 2e) function.

(h) Draw the basic flowcharts of the **if statement**, **for loop** and, **while loop**.

(i) Given the list **my_List = [1,2,4,6],** write two lines of code to add **"8"** to the end of the list and delete/remove the number **"1"**.

(j) Write a program to read data in a multi-lined text file named "**exam.txt**". (Use a for loop)

QUESTION 3. **[20 Marks]**

Using the Program Development Life Cycle (PDLC) steps:

1. Problem Definition
2. Problem Analysis
3. Algorithm design and representation (Pseudocode or flowchart)
4. Coding and/or debugging

Design and write a program to check if a number is odd or even. (Number should be input by the user)

*for step three (3) Algorithm design and representation, draw the flowchart only – **Do Not write pseudocode for your program.**

[END OF EXAM]