



# **MASENO UNIVERSITY**

## **UNIVERSITY EXAMINATIONS 2017/2018**

### **FIRST YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN COMPUTER TECHNOLOGY**

#### **MAIN CAMPUS**

#### **CIT 111: FUNDAMENTALS OF PROGRAMMING**

Date: 12<sup>th</sup> March, 2018

Time: 8.30 - 11.30am

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#### **INSTRUCTIONS:**

- Answer Question ONE and any other TWO
- No use of mobile phones in the examination room



### Question 1(30 Marks: Compulsory)

- i. What is python? (2 marks)
- ii. What is the difference between object oriented programming and procedural programming? (6 marks)
- iii. Is python case sensitive? (2 marks)
- iv. Write a code snippet that prints your name and the course you do on one line. (4 marks)
- v. What are the rules to be followed when naming a variable? (5 marks)
- vi. What's the difference between the data types int and float? (2 marks)
- vii. How does python convert float value to the nearest int value? (2 marks)
- viii. Explain the relationship between a function and its arguments. (4 marks)
- ix. The + operator can be used for more than one purpose. Which was can this operator be used in a program? (3 marks)

### Question 2(20 Marks)

- i. Jack says he will not bother with analysis and design but proceed directly to coding his program. Would you support this idea? Why? (10 marks)
- ii. Software developments has stages that should be adhered to. List the different stages explaining their significance. (10 marks)

### Question 3(20 Marks)

- i. The math module includes a pow function that raises a number to a given power. The first argument is the number and the second arguments the exponent. Write a code segment that imports this function and calls it to print the value  $8^2$  and  $5^4$ . (8 marks)
- ii. Write an import statement that just imports the functions sqrt and log from the math module. (4 marks)
- iii. Joseph needs to calculate the surface are and volume of a cuboid, and change the volume to liters. Write a program that would perform this operation and display the output on the console. (8 marks)

### Question 4(20 Marks)

- i. Five-star video rents new videos for \$3 a night and oldies for \$2 a night. Write a program that the clerks at five-star video can use to calculate the total charge for the customer's video rentals. The program should prompt the user for the number of each type of vide and output the total cost. (10 marks)
- ii. An employee's total weekly pay equals the hourly wage multiplied by the total number of regular hours plus any overtime pay. Overtime pay equals the total

overtime hours multiplied by 1.5 times the hourly wage. Write a program that takes as inputs the hourly wage, total regular hours and total overtime hours and displays an employee's total weekly pay. (10 marks)

**Question 5(20 Marks)**

- i. Write a loop that prints your name 100 times. Each name should begin on a new line. (6 marks)
- ii. The variable x and y refer to numbers. Write a code segment that prompts the user for an arithmetic operator and prints the value obtained by applying that operator to X and Y. (8 marks)
- iii. The factorial of an integer N is the product of all the integer between 1 and N, inclusive. Write a while loop that computes the factorial of a given integer N. (6 marks)