L-Università ta' Malta

SUBJECT: Computing
PAPER NUMBER: Practical – Task 1 SPECIMEN PAPER
DATE:
TIME:

Task 1 is to be composed of 3 questions carrying a weighting of 30% of Paper 3. This task covers the implementation of sequence, selection and iteration.

1. You are to design and implement a program using one class called 'Task1Question1' following the below sequence and logic of events;
   a) Find the area of a rectangle (length * breadth) having obtained the dimensions from the user and storing the result within the appropriate datatype variable. [3]

   b) Find the area of a circle (pi*r^2) having obtained the dimensions from the user and storing the result within the appropriate datatype variable. [3]

   c) Identify which of the two areas is greater and output the statement 'The area of the rectangle is greater than that of the circle' or 'The area of the circle is greater than that of the rectangle' respectively. [2]

   d) Swap the contents of the two area variables populated in (a) and (b). [2]
   (Total: 10 marks)

2. You are to design and implement a program using one class called 'Task1Question2' following the below sequence and logic of events;
   a) Output the following menu to the user:

      1. Addition
      2. Subtraction
      3. Multiplication
      4. Average
      5. Exit [2]

   b) Implement the code for each of the menu options presented to the user in order to provide the resulting output for each mathematical function based on two values entered by the same user. [6]

   c) Repeat the menu until the user decides to choose option 5 and exit. [2]
   (Total: 10 marks)

3. You are to design and implement a program using one class called 'Task1Question3' following the below sequence and logic of events;
   a) Write a program in Java to display n terms of natural numbers, their sum and their average. For example if 4 is entered then the following is displayed:

      Terms: 1 2 3 4
      Sum: 10
      Average: 2.5 [3]

Question continues on next page

b) Based on the value of n entered by the user output a pattern using the '*' symbol forming a square. For example if n = 4 the following is displayed:

```
****
****
****
****
```
[4]

c) Calculate and output n Factorial where n is entered in (a). For example if n = 4 then n factorial would calculate 4*3*2*1 = 24. Note that if n=0 the result is 1. [3]

(Total: 10 marks)