People's Democratic Republic of Algeria

El Arbi Ben M'hidi Oum el Bouaghi University

Department of Material Science

Module: informatique II on: 11/05/2024

Year: 1st Year LMD Duration: 01h:30mn

Exam

Exercise 1: (6pts): write a Fortran program that reads three number than display them in a decreasing order

Example : 5,20,12 the program prints 20,12,5

Exercise 2: (6pts) Write a program that allows you to enter two positive integers and determine their greatest common divisor (GCD)

Exercise 3: (6pts) Write a program that determines whether an integer N is perfect or not. An integer is said to be perfect if it is equal to the sum of these divisors. Example 6=3+2+1

Exercise 4:(6pts): Write a program that calculates the division of two integers using successive subtractions.

Exercise 5:(6pts): Write a Fortran program to solve the equation $ax^2 + bx + c = 0$

Exercise 6:(6pts): Write a Fortran program that reads a person's age. Then it informs about its categories :

- Chicks from 6 to 9 years old
- Minime from 10 to 14 years old
- Cadet over 15 years old.

Exercise 7:(6pts): Let's consider the two sequences which computes 2^n

P1(0)=1 P1(n)= 2*P1(n-1)

P2(0)=1 P2(n) =P2(n-1)+P2(n-1)

1-Write a program using functions to implement P1 and P2 **?**

Exercise 8:(6pts)

In mathematics, a harshad number is an integer that is divisible by the sum of its digits

For example : 18, 20, 21, 24, 27, 30 are harshad numbers .Write a program Fortran that find harshad numbers less than N

Exercise 9 :(6pts): We know that : arctan(x)= $x - \frac{x^3}{3} + \frac{x^5}{5} - \frac{x^7}{7} + \frac{x^9}{9} - \frac{x^{11}}{11} + \ldots$

Write a Fortran program that reads x and compute arctan(x)

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Remark : ***you will choose three exercises of your own choice for the exam.***

2 points for each clean sheet of paper that is not empty.

Good Luck