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**Uva Wellassa
University**

Uva Wellassa University, Sri Lanka
Faculty of Science and Technology
Department of Computer Science & Technology
First Semester Examination – March/April 2013
IIT111-1 Foundation of Problem Solving with Programming

Instructions for candidates:

Answer all questions.

Time Allowed: One (01) Hour.

1.
 - a. List down and briefly explain the steps of problem solving. (10 mark)
 - b.
 - i. What is an algorithmic solution to a problem? (5 mark)
 - ii. Give two (2) examples for real life problems that could be solved through an algorithmic process. Explain why each of these problems is algorithmic in nature. (5 mark)
 - c. What types of problems can be solved by using a computer? (5 mark)
 - d. What are the five (5) types of functions in programming? (5 mark)
2.
 - a. Write an algorithm to swap (interchange) two variables with a help of third variable. (10 mark)
 - b. Write down a Problem Analysis Chart (PAC) to compute and display the Gross Salary of employees if pay rate is a constant. Following formula is used to calculate the Gross Salary.
$$\text{Gross Salary} = \text{Hours worked} \times \text{Pay rate} \quad (10 \text{ mark})$$
3. Have you ever seen this series of numbers? 1,1,2,3,5,8,13,... It's called the "Fibonacci series". Each number is a "fib," so the first fib or fib (1) is 1, fib (2) is 1, fib (3) is 2, and so on. The rule is that each fib, except for the first two, is the sum of the preceding two fibs.
Ex: fib (8) = fib (7) + fib (6)
fib (8) = 13+8=21

Draw a suitable flowchart to compute the n th fib and print it.

(Hint: You'll need a counter to keep track of whether or not the operation has reached the n th fib, a variable to keep track of your computations, and two more to store two fibs that you'll have to add to each other.) (50 mark)