

PRINCIPLES OF PROGRAMMING LANGUAGES

Question One

- a. Write algorithm using **pseudocode and flowchart** that uses while loops to perform the following steps:
 - i. Prompt the user to input two integers: firstNum and secondNum note that firstNum must be less than secondNum.
 - ii. Output all odd numbers between firstNum and secondNum.
 - iii. Output the sum of all even numbers between firstNum and secondNum.
 - iv. Output the numbers and their squares between firstNum and secondNum.
 - v. Output the sum of the square of the odd numbers between firstNum and secondNum.
- b. Redo Exercise (a) using for loops.
- c. Redo Exercise (a) using do...while loops.

Question Two

The population of a town A is less than the population of town B. However, the population of town A is growing faster than the population of town B. Write algorithm using **pseudocode and flowchart** that prompts the user to enter the population and growth rate of each town. The algorithm outputs after how many years the population of town A will be greater than or equal to the population of town B and the populations of both the towns at that time. (A sample input is: Population of town A = 5000, growth rate of town A = 4%, population of town B = 8000, and growth rate of town B = 2%)