Question 1:

//#include "stdafx.h" // Header File used VS.

#include <iostream>

//#include <iomanip> // Used to format the output.

#include <cstdlib> // Used for system().

#include <math.h> // Used for sqrt().

using namespace std;// ?

int main (){

int S; // Gram/Litre

double U; // Specific Max. Growth Rate. Per Hour.

double D; // Maximum Dilution Rate.

//srand(time(NULL)); // Gives different random number each time a program runs.

const int K = rand() % 7 + 2; // Saturation Constant - Randomly Gegerated Number Between 2 & 7. In Hour/Litre.

cout << "Enter value between 25 and 75, divisible by 5, for S in Gram/Litre: "; //Eg. 30

cin >> S;

cout << "Enter value bigger than 0.2, but less than 0.7, for U per Hour: "; //Eg. 0.3

cin >> U;

if((25 <= S && S <= 75) && (S % 5 == 0) && (0.2 < U && U < 0.7)){//if( ((S >= 25 && S <= 75) % 5 == 0) && (U > 0.2 && U < 0.7) ){ // Check Condition \*\*\*May Need Adjustments\*\*\*

D = U \* ( 1 - sqrt ( K / ( K + S) ) ); // Might have to adjust values to fit data type double. Add .00

cout.precision(3); // Prints 3 values after decimal point.

cout << "Maximum dilution rate is: " << D << endl;

if(0.35 < D && D < 0.45){//if( D > 0.35 && D < 0.45 ){

cout << "Kinetic parameters are acceptable." << endl;

}

else{

cout << "Kinetic parameters are not acceptable." << endl;

}

}

else{

cout << "Invalid Input. Program will now terminate." << endl;

}

system("PAUSE"); // Pauses the program before termination.

return 0;

}

