



Final Exam

Computer Programming

Computer and Syst. Dept.
Time Allowed: 2 Hrs.
1st Year Students.
Total Marks: 60
2013 – 2014
31/12/2014



Solve the following Questions:

• يسمح باستخدام القلم الرصاص (شرط وضوح الخط).

• الامتحان في ورقتين.

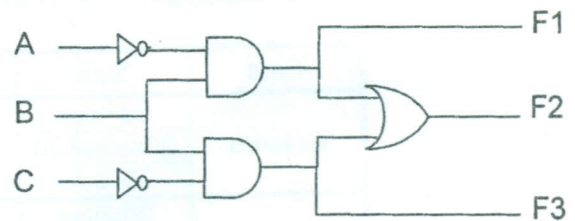
(1) Explain what is meant by inheritance, then show how to use this property to build three classes for "Human", "Animal", and "Plant". Then Construct the class "operations" with the following functions:

- Sum() \rightarrow to calculate the sum of two or three or four numbers.
- SumArr() \rightarrow to calculate the sum of a vector elements.

Construct another class "calculator" that inherits from operations with another function square() to calculate the square of an integer number. Write the main function to create an object from calculator then calculate the sum of an array elements entered by the user. (10 marks)

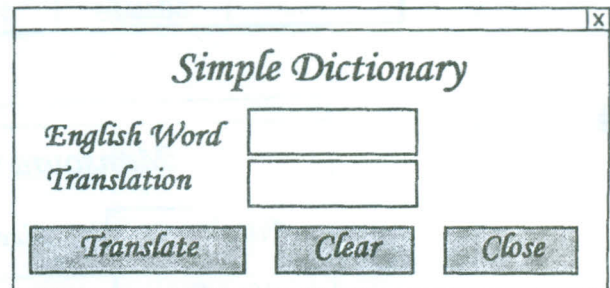
(2) Write a program to enter the inputs of the following logic circuit (A, B, and C), then print the corresponding outputs (F1, F2, F3).

(10 marks)



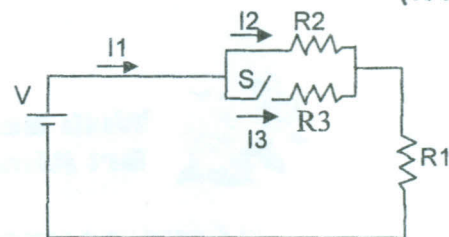
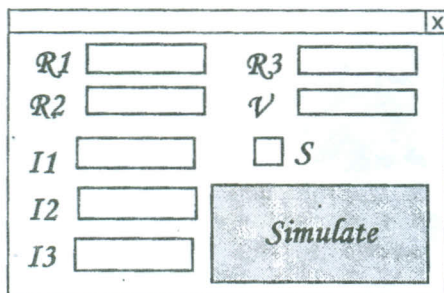
(3) Write the code for the following application that represents a simple dictionary that translates from "English" to "Arabic".

(10 marks)



(4) Write the code for the following simulator, which simulates the shown electrical circuit, you should enter the values of R1, R2, R3, V, and the state of the switch S, then the simulator shows the values of the currents I1, I2, and I3.

(10 marks)



اقلب الورقة



- (5) write the code for the following applications that represents a simple restaurant. A discount of 5% will be applied if the bill price exceeds 300 \$. (assume all prices).

Mansoura Restaurant

Meat
 Fish
 Chicke

Hot Drink
 Cold Drink

Close

Tomat
 Potato
 Others

Price

Apply Discount

New Price

New Order

(10 marks)

- (6) Calculate the final price of a TV according its type (colored or not) and size after applying a discount and adding a transportation cost تكاليف النقل as shown in the next table. Also, the application shows a digital clock as shown below.

Type	Size	Discount	Transportation cost
Colored	20>size	3%	10 \$
	20≤size<30	5%	15 \$
	30≤size	7%	20 \$
Uncolored	20>size	10%	22 \$
	20≤size<30	12%	25 \$
	30≤size	15%	40 \$

Mansoura TV Company

Price Size Colored

New Price Close

Calculate New Price

Clear

5 : 34 : 21

(10 marks)

----- End of Questions -----



**With Best Wishes
Dr: Ahmed Saleh**



PLZ, send your comments about the exam to:
aisaleh@yahoo.com