



نظم حاسبات صغيرة  
ماجستير هندسة حاسبات الكترونية  
(نظام العام الواحد) كود المادة: ٦٧١٤

Computer & Syst. Dept.  
Faculty of Engineering  
Diploma students  
Time Allowed: 3 hours.  
2012 -2013

**Solve the following questions:**

- (1) Explain why? Agents should be intelligent, then:  
a. What are the different agent classifications?  
b. Mention only some agent types.  
c. Explain briefly the different agent communication mechanisms. (10 marks)
- (2) Write short notes about:  
Swarm intelligence – routing in ad hoc network – Ant Colony optimization (10 marks)
- (3) What is meant by? Then, explain when to use each of them? (10 marks)

Inheritance, Overriding, Overloading

Then, a company has 2 types of employees:

- Sales employees: each one has name, city, age and language. The default value for the language is "Arabic".
  - Engineers: each engineer has a name, city, age, and a specific department.
- Show how to build Sales and Engineer classes using OOP.
  - Use a Display() method to display the data of any employee in the company.
  - Write a java program to create an engineer and two sales employees, and then display their data.

(15 marks)

- (4) Write a java class that represents a Square. Each Square has an edge length. The Square class has also the following methods:

- getSquareArea(): returns the square area.
- getCircumference(): returns the square circumference.

Then write a small application that constructs a square object with edge length entered by the user, and then prints the object area and circumference.

(10 marks)

- (5) Write java application for the calculator shown in figure 1.

(10 marks)

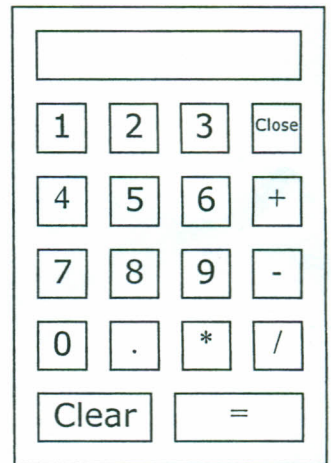


Figure 1

اقلب الورقة

- (6) The form in figure 2 represents an application for a simple restaurant. Write the required java code for such application assuming the different prices and discount.

Figure 2

(10 marks)

- (7) Write a java program to retrieve all records in the table Tb1(Id, Name, Birth, Address, Tel, Salary) from the database myDb. (10 marks)
- (8) Write a java program to enter a worker Id, then calculate his net salary. The workers data is stored in a database file called workerDB which contains one table Tb1(Id, Type, First\_name, Last\_name, Houres). The net salary can be calculated according to the following table:

Type	Hour Credit	Over	Tax
1	10	50	3%
2	20	70	5%
3	30	100	7%

(10 marks)

- (9) Build the java application shown in figure 3 that retrieves the employees' data according to his number. You can also insert, update, and delete new employees.

Figure 3

(15 marks)

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

With Best Wishes  
Dr: Ahmed Saleh

PLZ, send your comments about the exam to:  
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