King Fahd University of Petroleum and Minerals
College of Computer Sciences and Engineering
Information and Computer Science Department
First Semester 2009/2010 (091)
ICS 102 - Introduction to Computing I

Major Exam 01
Wednesday, 4th November 2009
Time: 120 minutes

Name: _____

ID#: | | | | | | |

Please circle your section number below:

Section	01	03	04	05	06
Instructor	Al-Muhammadi	Ghouti	Zhioua	Al-Muhammadi	Adel Fadel
Day and Time	SM 08:00-08:50	UT 09:00- 09:50	SM 09:00 - 09:50	SM 10:00-10:50	UT 11:00-11:50

Question #	Maximum Marks	Obtained Marks
1	20	
2	20	
3	15	
4	15	
5	15	
6	15	
Total	**100**	

~Good Luck~

Q1. **[5+5+10 = 20 marks]** Solve the following short answer questions:

a) What is a logical error? Give an example.

b) What's wrong with the following code?

```
int numerator  = 24;
int denominator  = 25;

System.out.println(numerator/denominator);
```

Suggest a solution to fix the problem if any:

c) For each of these expressions determine its result

```
String text = "Java Programming";

a. text.substring(0, 4)
b. text.length( )
c. text.substring(8, 12)
d. text.substring(0, 1) + text.substring(7, 9)
e. text.substring(5, 6) + text.substring(text.length() - 3,
   text.length())
```

a	b	c	d	e

Q2. **[4 * 5 = 20 marks]** Convert algebraic expressions to JAVA statements. Define all needed variable.

a) $\sqrt{B^2 + 4AC}$

b) $\sqrt{A^2 + 4B^3}$

c) $\sqrt[3]{AB}$

d) The area of a circle with radius R: πR^2

a	
b	
c	
d	

Q3. **[15 marks]** If you invest ***P*** Saudi Riyals with an investment company which gives you a profit rare at ***R*** percent compounded annually, in ***N*** years, your investment will grow to:

$$P(1 + R/100)^N$$

Saudi Riyals. Write a java code that reads from the user the values of ***P***, ***R***, and ***N*** and computes the amount of money earned after ***N*** years.

Example execution:

```
Enter the investment amount:  8000
Enter the profit rate:  25
Enter the number of years:  2
The investment amount after 2 years in: 12500.0 SAR
```

```
public class Question3 {
   public static void main(String[] args) {









   }
}
```

Q4. **[15 marks]** A flight seat has a fixed price and additional charge is considered based on the seat class as shown in the following table:

Seat Class	Extra Charge (%)
Economic	20
Business	50
First	75

Write a program which reads the fixed price from the user and then prints the total seat cost for each class.

Example execution:

```
Enter fixed seat cost:  400
Economic Class Cost:  480.0 SAR
Business Class Cost:  600.0 SAR
First Class Cost:  700.0 SAR
```

```
public class Question4 {
   public static void main(String[] args) {









   }
}
```

Q5. **[15 marks]** Write a program that reads the user's first, middle and last name as three separate strings and displays the name in the order of the first name, the middle initial, and the last name. Include the period after the middle initial. If the input strings are **Ahmed**, **Ali**, and **Al-Ghamdi**, for example, the output would be **Ahmed A. Al-Ghamdi**. Use the console window for output.

Example execution:

```
Enter the first name:
Ahmed
Enter the middle name:
Ali
Enter the family name:
Al-Ghamdi
Your name is: Ahmed A. Al-Ghamdi
```

```
public class Question5 {
   public static void main(String[] args) {









   }
}
```

Q6. **[15 marks]** Write a program that accepts a word and prints out the middle character. The length of the input word is odd. For example, if the input is **Magnificent**, which has 11 characters; you output the sixth character **f**.
Hint: You may use the division operator /.

Example execution:

```
Enter the string:
Magnificent
The middle character located at position 6 is: f
```

```
public class Question6 {
   public static void main(String[] args) {









   }
}
```