الجامعة السعودية الالكترونية
Saudi Electronic University
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Ministry of Higher Education
Saudi Electronic University
College of Computing and Informatics

Midterm Examination Cover Sheet

First Semester: 1436-1437 / 2015-2016

Course Instructor:		**Exam Date:**	**25/10/2015**
Course Title:	**Computer Programming 1**	**Course Code:**	**CS140**
Exam Duration:	**1 Hour**	**Number of Pages:** (including cover page)	**7**

Exam Guidelines

- **Mobile phones are not permitted.**
- **Calculators are permitted.**

Marking Scheme

Questions	Score
Q1	**/ 17**
Q2	**/ 10**
Q3	**/ 8**
Q4	**/ 5**
Q5	**/ 10**
Exam Score / 50	**/ 50**
Final Score / 25	**/ 25**

Student Name:		**Student ID:**	

Q1) For each of the following multiple choice questions, choose <u>one</u> correct answer.

1- For a program to be executed, where must it reside so that the CPU can read its instructions?

A. optical disk
B. primary memory = RAM
C. secondary memory
D. hard disk

2- What is the relationship between a Class and an Object of the same class type?

A. A class is an instance of an object.
B. An object is a template to create a class from it.
C. An Object is an instance of that class.
D. There is no relation.

3- When a Java application starts, what is the name of the method that is executed?

A. main
B. start
C. begin
D. Main

4- To declare two integer variables we can use:

A. int x; y;
B. int x, int y;
C. int x y;
D. int x, y;

5- What is the name of the = operator in Java?

A. inequality !=
B. assignment =
C. identity
D. equality ==

6- In Java, a collection of classes with a related purpose is called

A. interface
B. package
C. JVM
D. container

7- Which operator constructs object instances?

A. new
B. instanceof
C. void
D. construct

8- You should declare all instance variables as _____

A. public
B. void
C. private
D. final

9- The process of hiding object data and providing methods to access these data is called _____

A. Public interface
B. Encapsulation
C. Implementation
D. Unit testing

10- Any method declaration header should be:

A. access-specifier, return-type, method-name, (list of parameters).
B. access-specifier, return-type, (list of parameters), method-name.
C. return-type, access-specifier, method-name, (list of parameters).
D. access-specifier, method-name, return-type, (list of parameters).

11- The implicit parameter of a method is _____

A. Parameter passed in a method
B. the object on which the method is invoked
C. name of method
D. none of above

12- Which of the following statements with comments is (are) valid.

I. `int cnt = 0; /* Set count to 0`
II. `int cnt = 0; /* Set count to 0 */`
III. `int cnt = 0; // Set count to 0`

A. Only I is valid
B. I and II are valid
C. II and III are valid
D. Only III is valid

13- Using these statements:

```
String message="Welcome Abdullah";
String sub=message.substring(9, 12);
```

The value of the variable sub is _____ .

A. Abd
B. bdul
C. bdu
D. Abdu

14- Which one of the following is a correct representation of the given mathematical expression in Java.

$$\frac{(a - b/2)}{2}$$

A. (a – b / 2) / 2
B. a - b / 2
C. a - (b / 2) / 2
D. a – b / 2 % 2

15- What is the value of the following expression?

5 / 2 + 3 + 2

A. 5
B. 6
C. 7
D. 7.5

> , >= , < , <=
== , !=

16- Which of the following operators is NOT a relational operator?

A. <=
B. +=
C. !=
D. ==

17- What are the two parts of an if statement?

A. A condition and a body
B. A check and an increment
C. An increment and a body
D. An increment and a return value

[*17 Marks*]

Q2) For each of the following statements, answer with <u>True</u> or <u>False</u>.

A.java → javac → A.class → java → output

1.	The Java virtual machine loads the instructions for the program that you wrote, starts your program, and loads the necessary library files as they are required.	T
2.	You can take code that has been generated by the Java compiler and run it on different CPUs	T
3.	The expression `13.println()` is valid in Java.	F
4.	Number 11.00 can be stored as integer because it is equal to 11.	F
5.	A variable defined within a method is a local variable.	T
6.	Private instance variables can be accessed by methods from any class.	F
7.	The statements x/3 and x/3.0 return the same value in all cases.	F
8.	Variable names can be no more than 8 characters long	F
9.	The operator !> is not an operator in Java.	T
10.	To avoid round off errors, it is better to use == to compare floating-point numbers	F

[*10 Marks*]

Q3) Answer the following questions <u>briefly</u>.

1. **What is the advantages of Java over other programming languages?**

   Java is write once and run anywhere language since it will run on any platform that has JVM. Java has safety and portability features.

   Simple, Safe, Platform-independent ("write once, run anywhere"), Rich library (packages), and Designed for the internet

   <u>Any two advantages should be fine.</u>

[*2 Marks*]

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2. Define identifier, and list 3 of its rules.

Identifire is a name of variable, method or class.
The rules:

1. Can be made up of letters, digits, and the underscore (_) and dollar sign ($) characters
2. Cannot start with a digit
3. Cannot use other symbols such as ? or %
4. Spaces are not permitted inside identifiers
5. You cannot use reserved words such as public
6. They are case sensitive

[*4 Marks*]

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3. Consider the following invocation of the substring method. What are implicit and explicit parameters?

```
"SEU_CCI".substring(2,3);
```

Answer: One implicit parameter, called *SEU_CCI*, and two explicit parameter: 2 and 3.

[*2 Marks*]

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Q4) Consider the following code snippet. What is the potential problem with the `if` statement? How to fix it ?

```
double average;
average = (g1 + g2 + g3 + g4) / 4.0;
if (average == 90.0)
{
   System.out.println("You earned an A in the
class!");
}
```

Using == to test the `double` variable `average` for equality is error-prone.

```
final double EPSILON = 1E-14;
double average;
average = (g1 + g2 + g3 + g4) / 4.0;
if (Math.abs(avrage - 90.0) <= EPSILON)
{
   System.out.println("You earned an A in the class!");
}
```

[*5 Marks*]

Q5) Write a program that asks the user to enter two integer numbers, and to pick an operation in which 1 means addition, 2 means subtraction. So, based on user's choice the entered numbers will be either added or subtracted. Finally, display the result of the operation.

[*10 Marks*]

Typical run of the program:

```
Enter first number: 5
Enter second number: 3
Enter 1 for addition, 2 for subtraction: 1
Result = 8
-----------------------------------
Enter first number: 5
Enter second number: 3
Enter 1 for addition, 2 for subtraction: 2
Result = 2
```

```
import java.util.Scanner;
public class calculator
{
   public static void main(String [] args)
   {
      Scanner input = new Scanner(System.in);
      System.out.println("Enter first number:");
      int x = input.nextInt();
      System.out.println("Enter second number:");
      int y = input.nextInt();
      System.out.println("Enter 1 for addition, 2 for
substraction:");
      int op = input.nextInt();
      int result;
      if (op == 1)
         result = x + y;
      else if (op == 2)
         result = x - y;
      else
         System.out.println("Invalid operation");
      System.out.println("Result = " + result);
  }
}
```

End of the Exam … Good Luck