



King Saud University

College of Computer and Information Sciences

Computer Science Department

Course Code:	CSC 111
Course Title:	Introduction to Programming
Semester:	Spring 2012
Exercises Cover Sheet:	Mid 2 Exam

Student Name:

Student ID:

Student Section No.

Tick the Relevant	Computer Science B.Sc. Program ABET Student Outcomes	Question No. Relevant Is Hyperlinked	Covering %
√	a) Apply knowledge of computing and mathematics appropriate to the discipline;	1	40
	b) Analyze a problem, and identify and define the computing requirements appropriate to its solution		
√	c) Design, implement and evaluate a computer-based system, process, component, or program to meet desired needs;	2, 3	60
	d) Function effectively on teams to accomplish a common goal;		
	e) Understanding of professional, ethical, legal, security, and social issues and responsibilities;		
	f) Communicate effectively with a range of audiences;		
	g) Analyze the local and global impact of computing on individuals, organizations and society;		
	h) Recognition of the need for, and an ability to engage in, continuing professional development;		
√	i) Use current techniques, skills, and tools necessary for computing practices.		
	j) Apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices;		
	k) Apply design and development principles in the construction of software systems of varying complexity;		

Question 1 (12 Marks):

1. what is the value of b after executing the following code? **(2 Marks)**

```
i = 10; j = 5; k = 2;
b = (j < 7 || (j == 5 && i <= k));
```

answer :

2. Consider the following statement: **(2 Marks)**

```
bike.ride(distance);
```

Question: Circle the statements that are true?

- a- ride must be a method.
 - b- ride must be the name of an attribute.
 - c- bike must be the name of a class
 - d- bike must be a method.
-

3. what is the value of **length** and **count** after executing the following code? **(2 Marks)**

```
length = 10;
count = 15;
ok = true ;
while (count < 20 && ok) {
    if (length >= 100) {
        length = length - 2;
        ok = false ;
    }
    else
        length = count * length;
    count++;
}
```

answer :

4. what is the display of the following code? **(2 Marks)**

```
int value, i ;
for (i = 20; i < 30; i+=3){
    value = i%4 + 2;
    if (value > 2)
        System.out.println("value="+value);
}
```

answer:

5. Consider the following code fragment: **(2 Marks)**

```
public void test1(int x) {  
    int odd = 1;  
    if(odd) {  
        System.out.println("odd");  
    }  
    else {  
        System.out.println("even");  
    }  
}
```

Question: Circle the statement that is true?

- a- there is an error in the code.
 - b- "odd" will always be output.
 - c- "even" will always be output.
 - d- "odd" will be output only for odd values.
-

6. Consider the following code fragment: **(2 Marks)**

```
public void test2( boolean a, boolean b){  
    if( a ) {  
        System.out.println("A");  
    }  
    else if(a && b) {  
        System.out.println( "A && B");  
    }  
    else {  
        if ( !b ) {  
            System.out.println( "notB" ) ;  
        }  
        else {  
            System.out.println( "ELSE" ) ;  
        }  
    }  
}
```

Question: Circle the statements that are true?

- a- If **a** is true and **b** is true then the output is "A && B"
- b- If **a** is true and **b** is false then the output is "notB"
- c- If **a** is false and **b** is true then the output is "ELSE"
- d- If **a** is false and **b** is false then the output is "ELSE"

Question 2 (10 Marks):

Expression
-num1 : int
-num2 : int
-op : char
-result : int
+Expression()
+setData(in c : char, in n1 : int, in n2 : int) : void
+calculate() : void
+greaterExpression(in calc : Expression) : Expression
+display() : void

Consider the class *Expression* that represents a binary operation (example num1+ num2, num1 * num2, num1 – num2, num1 / num2). It has the following attributes:

- num1** : represents the first operand
- num2** : represents the second operand
- op** : represents the operator (+, -,*,/)
- result** : represents the result of the operation (result = num1 op num2)

The class *Expression* has the following methods:

The constructor **Expression()**: initializes *num1*, *num2* with the value 0 (zero), the character attribute *op* with blank and the attribute *result* with -100000.

setData(char c, int n1, int n2): stores the values of the input parameters in the attributes *op*, *num1* and *num2*.

calculate(): computes the result according to the value of the attribute *op*.

Example If *op* is '+' then result = num1+num2,

greaterExpression(Expression c): accepts one parameter of type *Expression*, compares its result with the result of the current object and returns the object that has the greater result.

display(): displays all the information of the *Expression* in the form :
result=num1 op num2

Implement the class *Expression*.

Answer :

Question 3 (8 Marks):

Using the class Expression defined in question 2, write a Java Program that reads the data needed to initialize 20 Expressions and displays the Expression that has the biggest result (hint: data of each expression should be read from the keyboard before being used.)

Answer :

Result					
Question No.	Relevant Student Outcome	SO is Covered by %	Full Mark	Student Mark	Assessor's Feedback
1	a	40	12		
2	c	33	10		
3	c	27	8		
Totals		100%	30		
I certify that the work contained within this assignment is all my own work and referenced where required. Student Signature: _____ Date: _____					Feedback Received: Student Signature: Date: