King Saud University

College of Computer and Information Sciences
Computer Science Department

Course Code:	CSC 111
Course Title:	Introduction to Programming
Semester:	Spring 2015
Exercises Cover Sheet:	**Mid 2 Exam - A**

Duration: 90 min

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;**	**1,2**	**50%**
	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;		
	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.	**1,2**	**50%**
	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;		

Put your answer of the question 1 (**multiple choice questions**) in the following table:

Question	Answer
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Question 1 (5 Marks)

1. How many times will the following code print "Welcome to Java"?

```
int count = 0;
while (count < 10) {
  System.out.println("Welcome to Java");
  count++;
}
```

A. 8
B. 9
C. 10
D. 11
E. 0

---

2. What is the value in count after the following loop is executed?

```
int count = 0;
do {
  System.out.println("Welcome to Java");
} while (count++ < 9);
System.out.println(count);
```

A. 8
B. 9
C. 10
D. 11
E. 0

---

3. Which of the following loops prints "Welcome to Java" 10 times?

A:

```
for (int count = 1; count <= 10; count++) {
  System.out.println("Welcome to Java");
}
```

B:

```
for (int count = 0; count < 10; count++) {
  System.out.println("Welcome to Java");
}
```

C:

```
for (int count = 1; count < 10; count++) {
  System.out.println("Welcome to Java");
}
```

D:

```
for (int count = 0; count <= 10; count++) {
  System.out.println("Welcome to Java");
}
```

A. BD
B. ABC
C. AC
D. BC
E. AB

---

4. The following loop displays _____.

```
for (int i = 1; i <= 10; i++) {
  System.out.print(i + " ");
  i++;
}
```

A. 1 2 3 4 5 6 7 8 9
B. 1 2 3 4 5 6 7 8 9 10
C. 1 2 3 4 5
D. 1 3 5 7 9
E. 2 4 6 8 1

---

5. Given the following four patterns,

```
Pattern A          Pattern B          Pattern C          Pattern D
1 2 3 4 5 6                 1         1 2 3 4 5 6            1
1 2 3 4 5                 2 1           1 2 3 4 5          2 1
1 2 3 4                 3 2 1             1 2 3 4        3 2 1
1 2 3                 4 3 2 1               1 2 3      4 3 2 1
1 2                 5 4 3 2 1                 1 2    5 4 3 2 1
1                 6 5 4 3 2 1                   1    6 5 4 3 2 1
```

Which of the pattern is produced by the following code?

```
  for (int i = 1; i <= 6; i++) {
    for (int j = 6; j >= 1; j--)
      System.out.print(j <= i ? j + " " : " ");
    System.out.println();
  }
```

A. Pattern A
B. Pattern B
C. Pattern C
D. Pattern D

---

6. Consider the following incomplete code:

```
public class Test {
  public static void main(String[] args) {
    System.out.println(f(5));
  }

  public static int f(int number) {
    // Missing body
  }
}
```

The missing method body should be _____.

A. return "number";
B. System.out.println(number);
C. System.out.println("number");
D. return number;

---

7. Given the following method

```
static void nPrint(String message, int n) {
  while (n > 0) {
    System.out.print(message);
    n--;
  }
}
```

What will be displayed by the call nPrint('a', 4)?

A. aaaaa
B. aaaa
C. aaa
D. invalid call

---

8. Given the following method

```
static void nPrint(String message, int n) {
  while (n > 0) {
    System.out.print(message);
    n--;
  }
}
```

What is k after invoking nPrint("A message", k) in the following code?

```
int k = 2;
nPrint("A message", k);
```

A. 0
B. 1
C. 2
D. 3

---

9. Analyze the following code:

```
class Test {
  public static void main(String[] args) {
    System.out.println(xmethod(5));
  }

  public static int xmethod(int n, long t) {
    System.out.println("int");
    return n;
  }

  public static long xmethod(long n) {
    System.out.println("long");
    return n;
  }
}
```

A. The program displays int followed by 5.
B. The program displays long followed by 5.
C. The program runs fine but displays things other than 5.
D. The program does not compile because the compiler cannot distinguish which xmethod to invoke.

10. What is wrong in the following code?

```
class TempClass {
  int i;
  public void TempClass(int j) {
    int i = j;
  }
}

public class C {
  public static void main(String[] args) {
    TempClass temp = new TempClass(2);
  }
}
```

A. The program has a compilation error because TempClass does not have a default constructor.
B. The program has a compilation error because TempClass does not have a constructor with an int argument.
C. The program compiles fine, but it does not run because class C is not public.
D. The program compiles and runs fine.

Question 2.A (2 Marks)

What is the output of the following program?

```
class CheckMe {
    int i;
    double j;
    public CheckMe(){
        i = 9;
        j = 10;
    }
    public CheckMe(int x, double y){
        i = x;
        j = y;
    }
    public void setI(int newI){
        i = newI;
    }
    public void setJ(double newJ){
        j = newJ;
    }
    public void m(int x, int y){
       j = 1 + i / (( i - x) / y);
    }
}

public class TestCheckMe {
    public static void main(String[] args) {
        CheckMe m1 = new CheckMe();
        m1.setJ(4.5);
        CheckMe m2 = new CheckMe(100, 150.3);
        m2 = m1;
        m2.setI(m2.i + 2);
        m2.m(7, 2);
        System.out.println(m1.i + ", " + m1.j +", " + m2.i + ", " + m2.j);
    }
}
```

Output

Question 2.B (3 Marks)

We would like to write a program that reads a number n and prints a square of asterisks. However, if n is even the square should be filled, but when it is odd the square should be empty.

The following are different samples of the desired input and output:

input (n)	output
2	** **
3	*** * * ***
4	**** **** **** ****
5	***** * * * * * * *****
6	****** ****** ****** ****** ****** ******

You are given most of the program. Just **fill in the blanks**:

```
public class Square{
    public static void main( String[] args) {
        Scanner kb = new Scanner(System.in);
        int n = kb.nextInt();
        for (int i =______; i < n; i++) {
            System.out.print("*");
            if ((n___2 == ___)||(i==0)||(i==___))
                for(int j = 1; j<n-1; j++)
                    System.out.print("*");
            else
                for(int j = n-1; j>_______; j--)
                    System.out.print(" ");
            System.out._________("*");
        }
    }
}
```

Result					
Question No.	**Relevant Student Outcome**	**SO is Covered by %**	**Full Mark**	**Student Mark**	**Assessor's Feedback**
1	a	50	5		
2	i	50	5		
Totals		100%	10		

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:**	