King Saud University

College of Computer and Information Sciences

Computer Science Department

Course Code:	CSC 111
Course Title:	Introduction to Programming
Semester:	Fall 2020-21
Exercises Cover Sheet:	**MidTerm Exam**
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 answers of Part I (**multiple choice questions**) in the following table:

Question	Answer
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	

PART I: (15 marks)

1. **The following code segment:**

```
if (number > 0)
     if (number < 10)
          System.out.println("number is between 0 and 10");
```

is equivalent to:

A. if(number > 0 && number < 10) System.out.println("number is between 0 and 10");
B. if(number > 0 || number < 10) System.out.println("number is between 0 and 10");
C. if(!number > 0 || !number < 10) System.out.println("number is between 0 and 10");
D. None of the above

2. **The following code segment:**

```
if(!(x < 10 && y == 3))
     System.out.println("we are here");
```

is equivalent to:

A. if(!(x < 10) && !(y == 3)) System.out.println("we are here ");
B. if(x >= 10 || y != 3) System.out.println("we are here ");
C. if(x < 10 && y == 3) System.out.println("we are here ");
D. None of the above

3. **What is the output of the following java program:**

```
public class MyJavaProgram {
    public static void main(String[] args) {
     int x = 7 , y = 10;
     if(!(x < 10 && y == 3));
          System.out.println("we are here");
     else
          System.out.println("we are not here");
    }
}
```

A. we are here
B. we are not here
C. we are here
   we are not here
D. compilation error

4. **If p is a Boolean variable, which of the following logical expressions always has the value FALSE ?**

A. p || p
B. p || !p
C. p && !p
D. a and b

5. **Which of the following operators can operate on a boolean variable?**

```
1. &&
2. ==
3. ?:
4. +=
```

A. 3 and 2
B. 1 and 4
C. 1, 2 and 4
D. 1 and 2

6. **What is the output of this program?**

```
public class increment {
    public static void main(String args[]) {
     double var1 = 1 + 5;
     double var2 = var1 / 4;
     int var3 = 1 + 5;
     int var4 = var3 / 4;
     System.out.print(var2 + "     " + var4);}}
```

A. 1 1
B. 0 1
C. 1.5 1
D. 1.5 1.0

7. Which boolean expression does not cause a run time error in the following code?

```
public class LogicalOperator {
public static void main(String[] args) {
 int dividend=200, divisor=0;
 if( divisor!=0 && dividend/divisor>1 )
   System.out.println(":(");
 else
   System.out.println(":)"); }}
```

A. divisor!=0 && dividend/divisor>1
B. divisor!=0 & dividend/divisor>1
C. divisor==0 && dividend/divisor>1
D. divisor==0 & dividend/divisor>1

8. How many times this loop will iterate?

```
int n=50;
while (n>10)
  n-=n/n;  \\ n = n - 1 ;
```

A. 10
B. 25
C. 40
D. 50

9. What is the output of this program?

```
       public class Output {
public static void main(String args[]) {
int x , y;
x = 10;
x++;
--x;
y = x++;
System.out.println(x + "    " + y); }}
```

A. 11 11
B. 10 10
C. 11 10
D. 10 11

10. What is the output of this program?

```
public class increment {
public static void main(String args[]) {
int g = 3;
System.out.print(++g * 8);
}
}
```

A. 25
B. 24
C. 32
D. 33

11. What is the output of this program?

```
class Output {
      public static void main(String args[])
          {
           int x , y = 1;
           x = 10;
           if (x != 10 && x / 0 == 0)
               System.out.println(y);
           else
               System.out.println(++y);
           }    }
```

A. 1
B. 2
C. Runtime error owing to division by zero in if condition
D. Syntax error

12. what is the output of the following code fragment:

```
int x=1;

while(x!=4)

   System.out.println(++x)
```

A. 1234
B. infinite loop
C. 234
D. Syntax error

13. What is the output of the below Java program with a SWITCH statement?

```
int points=10;
switch(points){
default: System.out.println("FAIL");
case 6: ;
case 7: System.out.println("PASS ");
case 8: ;
case 9: System.out.println("Excellent");break;
 }
```

A. PASS Excellent
B. Excellent
C. FAIL PASS Excellent
D. FAIL

14. What is the output of this program?

```
 class variable_scope{
       public static void main (String args[]){
           int x = 5;
             { int y = 6;
            System.out.print(x + " " + y);}
            System.out.println(x + " " + y);  }}
```

A. 5 6 5 6
B. 5 6 5
C. Runtime error
D. Compilation error

15. After execution of the following code, what will be the values of x, y and z?

```
int x, y, z;
y = 1;
z = 5;
x = 0 - (++y) + z++;
System.out.println("x="+ x + ","+" y="+ y +","+" z="+ z);
```

A. x = 4, y = 2, z = 6
B. x = 4, y = 1, z = 5
C. x = 3, y = 2, z = 6
D. x = -7, y = 1, z = 5

PART II (10 marks)

A. Write the segment of code using if/else which would correspond to the following switch: (5 marks)

```
switch (browser) {
 default:
    System.out.println ( "We hope that this page looks ok! " );
case "Edge":
    System.out.println ( "You've got the Edge!" );
    break;
  case "Chrome":
  case "Firefox":
  case "Safari":
  case "Opera":
System.out.println ( "Okay we support these browsers too" );
    break;
  }
```

Answer question A:

```
if(browser.equals("Edge"))
      System.out.println ( "You've got the Edge!" );
else if(browser.equals("Chrome") ||
            browser.equals("Firefox") ||
            browser.equals("Safari") ||
            browser.equals("Opera"))
      System.out.println ( "Okay we support these browsers too" );

else {
    System.out.println ( "We hope that this page looks ok! " );
    System.out.println ( "You've got the Edge!" );
}
```

B. Trace the following codes and then find the output: (5 marks)

```
int i=0; int sum=0;
while(i<5)

{ sum=sum+i;

  i++; }

while(i<5)

{ sum=sum+i+i%2;

  i++; }
 System.out.println("sum= "+sum);

 System.out.println("counter i= "+i);
```

Answer question B:

```
sum= 10
counter i= 5
```

Result

Question No.	Relevant Student Outcome	SO is Covered by %	Full Mark	Student Mark	Assessor's Feedback
1	a	60	15		
2	i	40	10		
Totals		100%	25		

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:**