King Saud University
College of Computer and Information Sciences
Computer Science Department

Course Code	CSC 111	
Course Title	Introduction to Programming	
Section No.		
Semester	First 431	
Exam	Midterm Exam	
Date	21/10/2021	Duration: 90 minutes
Student Name		
Student ID		

Course Learning Outcomes		Relevant question	Full mark	Student mark
CLO 1	a) Apply knowledge of computing and mathematics appropriate to the discipline;	**1,2**	20	
CLO2	i) Use current techniques, skills, and tools necessary for computing practice.	**1,2**	5	
Feedback/Comments:				

Part I: Put your answers (**multiple choice questions**) in the following table. **(20 Marks)**

Question	Answer
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

1.   **What is the output of the following segment(if any)?**

```
double x = 9;
int y = 2;

double z = x / y + 1.3;
System.out.println(z);
```

   a) 5.3
   b) 5.8
   c) 5.0
   d) 4.8

2.   **What is the result of the following expression when x is an integer, and its value is 3576?**

```
(x/10)%10
```

a) 6
b) 7
c) 76
d) 357

3.   **What will be the output of the following program (if any)?**

```
public class Main {
    public static void main (String[] args) {
        int x = 20;
        int y = 10;
        double z = x++ - y * 7 / --y + x * 10;
        System.out.println(z);
    }
}
```

   a) 0.0
   b) 20.0
   c) 223.0
   d) Compilation Error or Runtime Error

4.   What will be the output of the following program (if any)?

```java
public class Main{

public static void main(String[] args){
    int i = 11, j;
    j = i++ + ++i;
    System.out.println(i++);
    }
}
```

a) 11
b) 12
c) 13
d) 14

5.   What is the output of the following segment (if any)?

```java
String s = "Hi";
    if (s = "Hi")
        System.out.print("Hi ");
    else
        System.out.print("Not Hi ");
    System.out.print("Done! ");
```

a. Hi
b. Not Hi
c. Hi Done
d. Compilation Error

6.   What is the output of the following segment (if any)?

```java
 int a = 1, e = 0;
System.out.print(5 / e > 4 && a > 1);
```

a. true
b. false
c. Syntax Error
d. Runtime Error

7. **What is the output of the following segment (if any)?**

```java
int var1=1, var2=2, var3=3;
if(++var1 > var2++ || var1-- > 0)
 var3++;
else
 var3--;
System.out.println(var1+" "+var2+" "+var3);
```

a) 2 3 2
b) 1 3 4
c) 2 2 4
d) Compilation fails

8. **What is the output of the following segment (if any)?**

```java
int odd = 1;
if(odd){
 System.out.println("odd");
}
else{
 System.out.println("even");
}
```

a) odd
b) even
c) It runs, but no output
d) Compilation error

9. **What is the output of the following program (if any)?**

```java
public class Equals{
 public static void main(String [] args){
    int x = 100;
    double y = 100.1;
    boolean b = (x = y);
    System.out.println(b);}}
```

a) It runs, but no output
b) true
c) false
d) Compilation error

10. **What is the output of the following java code (if any)?**

```java
public class testClass {

public static void main(String[] args) {
        int x=3;
        switch(x) {
            default: System.out.print("true");
            case 1: System.out.print("1");break;
            case 2: System.out.print("2");
        }}}
```

a) true1
b) 12
c) Compilation error
d) None of the above

11. **What is the output of the following java code (if any)?**

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

a) 12345678910
b) 11
c) compilation error
d) 1 2 3 4 5 6 7 8 9 10

12. **Which of the following expressions is equivalent to the Boolean expression :**

```
!(varA < 5 && varB != varC)
```
assume any value for varA, varB and varC

a) varA > 5 || varB != varC
b) varA >= 5 || varB == varC
c) !(varA < 5) || (varB != varC)
d) None of the above

13. How many times this loop will iterate?

```
int number = 10;
while (number >= 0){
    number -= 2;
    System.out.println(number);
}
```

a)10
b) 5
c) 6
d) 0

14. What is the output for the following code snippet (if any)?

```
int i= -2;
while(i<=10){
    i = i * 2;
}
System.out.print(i + " ");
```
a) -2
b) -8
c) Infinite loop
d) Compilation error

15. What is the output for the following code snippet (if any)?

```
int count = 1;
while (count < 5);
{
    System.out.print(count + " ");
    count += 2;
}
```

a) 1 3 5
b) 1 3
c) Infinite loop
d) Compilation error

16. **What is the output for the following code snippet (if any)?**

```
int i = 1;
while (i < 20){
    System.out.print(i + " ");
    i *= 2 + i;
}
```

a) 1 3 15
b) 1 3
c) 1 3 5 7 9 11 13 15 17 19
d) Infinite loop

17. **What is the output for the following code snippet (if any)?**

```
for (int i = 1 ; i <= 5 ; i++)
    if (i % 4 = 0)
        System.out.print(" true ");
```

a)   true true
b)   true
c)   Compilation error
d)   false

18. **What is the output of the following code segment (if any)?**

```
int i=1;
while(i--<=5 && true){
    int x=i;
    i+=2;
}
System.out.println(x);
```

a) 5
b) 6
c) Compilation error
d) infinite loop

19.   **What is the output of the following code segment (if any)?**

```
int yes = 0;
boolean no = false;
while (!no || yes <= 5){
     System.out.print(yes);
     if (yes * 2 - 3 == 9)
          no = true;
     yes++;
}
```

a) 0123456
b) 012345
c) 6
d) 5

20.   **What will be the output of the program (if any)?**

```
public class test1
{
 public static void main(String [] args)
 {
 int i = 1;
 do {
    while ( i < 1 )
        System.out.print("i is " + i);
 } while ( ++i > 1 ) ;
 }
}
```

  a) i is 1
  b) i is 1 i is 1
  c) No output is produced.
  d) Compilation error

Part II (5 marks)

1) **(1.5 marks) Given that year is an integer.
   Which of the following expressions is
   equivalent to?**

```
if (year > 2000 && year < 2005)
      System.out.println("Accepted");
else System.out.println("Denied");
```

A. switch (year){ case 2001: case 2002: case 2003: case 2004: System.out.println("Accepted"); break; default: System.out.println("Denied"); }	**B.** switch (year){ case > 2000: case <2005: System.out.println("Accepted"); break; default:System.out.println("Denied"); }
C. switch (year){ case 2000: case 2001:case 2002: case 2003:case 2004:case 2005: System.out.println("Accepted"); break; default: System.out.println("Denied"); }	**D.** switch statements cannot be used for range compare

```
      Answer:
```

2) (1.5 marks) Which of the following expressions is equivalent to?

```
switch (var){
  case 1 : System.out.print("P");
  case 2 :
  case 3 : System.out.print("Q");
          break;
  case 4 : System.out.print("R");
  default: System.out.print("S");
}
```

A.   if (var == 1)
System.out.print("P");
   if (var == 2 || var == 3)
System.out.print("Q");
   if (var == 4)
System.out.print("R");
   else System.out.print("S");
	B. if (var == 1)
	System.out.print("P");
	   else if (var == 2 || var == 3)
	System.out.print("Q");
	   else if (var == 4)
	System.out.print("R");
	   else System.out.print("S");

C.   if (var == 1 || var == 2 ||
var == 3){
    if (var == 1)
System.out.print("P");
     System.out.print("Q");
  }
   else if (var == 4)
System.out.print("R");
   else System.out.print("S");
	D. if (var == 1 || var == 2 ||
	var == 3){
	    if (var == 1)
	System.out.print("P");
	     System.out.print("Q");
	   }
	  else{
	    if (var == 4)
	System.out.print("R");
	    System.out.print("S");
	   }

Answer:

3) Convert the following program segment, using only the while loop. (2 Marks)

```
int i;
 for(i=1;i< 5;i++) {
  for (int j = i; j > 0; j--)
    System.out.print(j + " ");
 System.out.print("****");
 System.out.println();
  }
```

Answer:

```
int i = 1;
 while (i < 5) {
    int j=i;
    while(j>0){
     System.out.print(j + " ");
     j--;}
 System.out.print("****");
 System.out.println();
 i++;
  }
```