UNIVERSITY OF COLOMBO, SRI LANKA

UNIVERSITY OF COLOMBO SCHOOL OF COMPUTING

DEGREE OF BACHELOR OF INFORMATION TECHNOLOGY
Academic Year 2013/2014 – 1st Year Examination – Semester 2

IT2205 - Programming I
26th July, 2014
(TWO HOURS)

<u>**Important Instructions :**</u>

- The duration of the paper is **2 (two) hours**.

- The medium of instruction and questions is English.

- The paper has **45 questions** and **12 pages**.

- All questions are of the MCQ (Multiple Choice Questions) type.

- All questions should be answered.

- Each question will have 5 (five) choices with <u>**one or more**</u> correct answers.

- All questions will carry equal marks.

- There will be a penalty for incorrect responses to discourage guessing.

- The mark given for a question will vary from 0 (*All the incorrect choices are marked & no correct choices are marked*) to +1 (*All the correct choices are marked & no incorrect choices are marked*).

- Answers should be marked on the special answer sheet provided.

- Note that questions appear on both sides of the paper.
  If a page is not printed, please inform the supervisor immediately.

- Mark the correct choices on the question paper first and then transfer them to the given answer sheet which will be machine marked. **Please completely read and follow the instructions given on the other side of the answer sheet before you shade your correct choices.**

1) Consider the following program written in Java.

```
public class Ex1{
public static void main(String args[]){
System.out.println("ChamaraMadushanka");
    }
}
```

Select from among the following, key words that can be seen in the program.

(a) class	(b) main	(c) Ex1
(d) Out	(e) Chamara	

Consider the following program written in Java to answer question 2 – 6.

```
public class Ex2{
public static void main(String args[]){
System.out.println("University of \n Colombo");
 }
}
```

2) Select from among the following, (a) possible identifier(s) that can be used in saving the above Java file which is written in a notepad in Windows environment.

(a) Ex2	(b) class	(c) void
(d) University	(e) \n	

3) Select from among the following, the full name of the bytecode file which could be generated, after compiling the above program successfully.

(a) class	(b) Ex2.class	(c) Ex2
(d) Ex2.java	(e) String.class	

4) Select from among the following the correct option/s which show/s the output of the given Java program.

(a) ("University of \n Colombo");	(b) "University of \n Colombo"
(c) University of Colombo	(d) University of
	\n Colombo
(e) University of	
Colombo	

5) In the given program there is a notation \n written there.

Select from among the following, the name which can be given to that category of notations.

(a) Unary operators	(b) Selection structures	(c) Escape sequences
(d) Bitwise operators	(e) String literals	

2

6) Select from among the following, similar and (a) valid notation/s like the notation \n illustrated in the above program.

(a) \\	(b) //	(c) \t
(d) \"	(e) \j	

Consider the following program written in Java to answer questions 7 – 10.

```java
public class Ex3{
public static void main(String args[]){
int num1 = 7;
//int num1 = 10;
//System.out.println("value of num1"+num1);
System.out.println(num1);
 }
}
```

7) What would the output of the program be?

(a) value of num1"+num1	(b) num1	(c) 7
(d) 10	(e) error	

8) What would the output of the program be, if the // notation which is marked in the program is removed?

(a) value of num1"+num1	(b) num1	(c) 7
(d) 10	(e) error	

9) Select from among the following, similar and (a) valid notation/s like // which is/are used in Java.

(a) /* */	(b) /** */	(c) '
(d) * *\	(e) \\	

10) One has **replaced** the following statement without changing the other statements shown in the program.

System.out.println("value of num1"+num1);

The new statement is illustrated below.

System.out.**print**("value of num1"+num1);

What would the output of the program be?

(a) value of num1 num1	(b) num 1	(c) 7
(d) 10	(e) error	

11) Select from among the following, programming languages which has/ve a close relationship with the development phase of the Java programming language.

(a) C	(b) Android	(c) Visual Basic
(d) Python	(e) C++	

3

12) Consider the following program written in Java.

```
public class Ex4{
public static void main(String args[]){
int value = 123_456_789;

System.out.println(value);
 }
}
```

What would the output of the program be?

(a) 123_456_789	(b) 123456789	(c) 987654321
(d) 45	(e) error	

13) Consider the following program written in Java.

```
public class Ex5{
public static void main(String args[]){
int value = 0B1010;

System.out.println(value);
 }
}
```

What would the output of the program be?

(a) 0B1010	(b) 10	(c) 2
(d) 0101B0	(e) error	

14) Consider the following program written in Java.

```
public class Ex7{
public static void main(String args[]){
int value = 0X7A;

System.out.println(value);
 }
}
```

What would the output of the program be?

(a) 0X7A	(b) 122	(c) A7X0
(d) 7	(e) 11	

Consider the following program written in Java to answer questions 15 – 16.

```
public class Ex8{
public static void main(String args[]){
int value = 8;
float num1 = 10.0f;
int add= value + num1;
System.out.println(add);
 }}
```

15) What would the output of the program be?

(a) 8	(b) 10	(c) 18.0
(d) 18.0f	(e) error	

16) Consider the following programming statements written in a table where the column A is marked with serial numbers. The column B shows the existing codes and in C new programming statements are introduced to replace with the existing ones.

Column A	Column B	Column C
1	`System.out.println(add);`	`System.out.println(value);`
2	`System.out.println(add);`	`System.out.println(add +value);`
3	`int add= value + num1;`	`int add= (int)(value + num1);`
4	`int add= value + num1;`	`int add= (int)value + num1;`
5	`int add= value + num1;`	`int (int)add= value + num1;`

Select from among the following, the correct option/s to see the output of the program as 18.

(a) only 1	(b) only 2	(c) only 3
(d) only 4	(e) only 5	

Use the following declarations and initializations to evaluate the Java expressions given in questions 17 - 21. Assume that each expression is evaluated separately in the program.
```
int value1 = 1;
float num1 = 5.0f;
byte num2 = 10;
char ch = 'A'; // note that the ASCII value of A is 65
```

Select from among the given options, the correct output for each of the questions 17 – 21.

17) System.out.println(ch + num2);

(a) 10	(b) A	(c) 6510
(d) 75	(e) error	

18) System.out.println(num1 + num2 + value1);

(a) 16.0	(b) 17.0	(c) 18.0
(d) 19.0	(e) error	

19) System.out.println(value1 = ch);

(a) A	(b) 65	(c) 66
(d) B	(e) error	

20) System.out.println(ch = num1 * 13.0f);

(a) A	(b) 65	(c) true
(d) A65	(e) error	

21) System.out.println(ch = 68);

(a) 68	(b) D	(c) true
(d) false	(e) error	

5

Consider the following class declaration written in Java to answer questions 22 – 28.

```
class X{
private int v1;
private int v2;
public X(){
System.out.println("Class X");
v1=1;
v2=2;
}
}

class Y extends X{
private int v3;
private static int v4;
public Y(){
 System.out.println("Class Y");
 v3=3;
 v4=4;
 }
}
```

22) Select from among the following, (a) valid option/s which can be considered as (an) instance variable(s).

(a) v1	(b) v2	(c) v3
(d) v4	(e) X()	

23) Select among the following, (a) valid option/s that can be considered as class variables.

(a) v1	(b) v2	(c) v3
(d) v4	(e) X()	

24) Select from among the following, (a) valid object orientation feature/s which is/are related with the word *extends*.

(a) Abstraction	(b) Information Hiding	(c) Encapsulation
(d) Inheritance	(e) Polymorphism	

25) Consider the following program written in Java with the main method in it and saved in the same folder where the above class declarations are saved.

```
public class Ex11{
public static void main(String args[]){
X obj1= new X();

}
}
```

What would the output of the program be when the program is executed?

(a) Class Y	(b) Class X	(c) 2
(d) 3	(e) error	

26) Consider the following program with the main method noting the modifications to the program of question no 25.

```
public class Ex11{
public static void main(String args[]){
Y obj1= new Y();
}
}
```

What would the output of the program be when the program is executed?

(a) Class X Class Y	(b) Class X

(c) Class Y
    Class Y
	(d) Class Y
	        Class X

(e) Class Y	

27) Consider the following program written in Java with the main method and new modifications.

```
public class Ex11{
public static void main(String args[]){
X obj1= new X();

System.out.println(obj1.v1);
 }
}
```

What would the output of the program be?

(a) Class A	(b) Class B	(c) 1
(d) 2	(e) error	

28) Consider the following program written in Java with the main method and new modifications.

```
public class Ex11{
public static void main(String args[]){
X obj1= new X();

System.out.println(obj1.v4);
 }
}
```

What would the output of the program be?

(a) Class A	(b) Class B	(c) 4
(d) 3	(e) error	

29) In Java, elements of an array are automatically initialized to some default value.
What is the default value for the elements of an array of integers?

(a) 0	(b) "0"	(c) null
(d) 1	(e) '1'	

30) Consider the following program written in Java.

```java
public class Ex12{
public static void main(String args[]){
int a = 6;
int b = 12;
while(a<b){
System.out.println("In the loop");
a+=2;
b-=2;
}
 }
}
```

Select from among the following, the number of times the phrase In the loop is printed in the command prompt, when the program is executed.

(a) 1	(b) 2	(c) 3
(d) 4	(e) 5	

31) Consider the following program written in Java.

```java
public class Ex13{
public static void main(String args[]){
int[] x = {5,6,7,8,9};
int[] y = x;
y[2] = 10;
System.out.println(x[2]);
 }
}
```

What would the output of the program be?

(a) 5	(b) 7	(c) 9
(d) 10	(e) error	

32) Consider the following program written in Java.

```java
public class Ex14{
public static void main(String args[]){
int[] x = {5,6,7,8,9};
for(int i=0;i<x.length-1;i++){
  if(i==3) continue;
   System.out.print(x[i]);
  }
 }
}
```

What would the output of the program be?

(a) 56789	(b) 5678	(c) 567
(d) 56	(e) 5	

33) Consider the following program written in Java.

```java
class Access{
        static int x;
        void increment(){
            x++;
        }
     }

    class Ex15 {
        public static void main(String args[])

        {
            Access obj1 = new Access();
            Access obj2 = new Access();
            obj1.x = 0;
            obj1.increment();
            obj2.increment();

            System.out.println(obj1.x + " " + obj2.x);

        }
    }
```

What would the output of the program be?

(a) 1 1	(b) 2 2	(c) 3 3
(d) 1 2	(e) 0 1	

34) Consider the following program written in Java.

```java
class Ex16 {
    public static void main (String args[]) {
        for (int i = 0; i < args.length; i++)
            System.out.println(args[i]);
    }
 }
```

After compiling the program successfully, the program was executed by issuing the following command and related arguments.

java Ex16 1234 12 1

What would the output of the program be?

(a) 1	(b) 1234	(c) 1234121
(d) 12341234	(e) error	

35) Select from among the following, (a) valid method/s available in an Applet.

(a) init()	(b) start()	(c) stop()
(d) main()	(e) destroy()	

36) Consider the following program written in Java.

```java
import java.awt.*;
import java.applet.*;
public class myApplet extends Applet {
    public void paint(Graphics g) {
        g.drawString("A Simple Applet", 20, 20);
    }
}
```

What is the message which will be displayed from the program?

(a) A Simple Applet, 20, 20	(b) "A Simple Applet"
(c) Graphics g	(d) A Simple Applet
(e) 2020202020202020202020202020202020	

37) Consider the following program written in Java.

```java
class Ex17 {
  public static void main(String args[]) {
            try {
                System.out.print("Hello" + " " + 1 / 0);
            }
            finally {
              System.out.print("World");
            }
        }
    }
```

What would the output of the program be?

(a) Hello
(b) World
(c) WorldException in thread "main" java.lang.ArithmeticException: / by zero
(d) Exception in thread "main" java.lang.ArithmeticException: / by zero
(e) Hello 1/0

38) Select from among the following, (a) valid key word/s that can be used to manually throw an exception.

(a) try	(b) finally	(c) throw
(d) catch	(e) new	

39) Consider the following program written in Java.

```java
public class Ex18{
public static void main(String args[]){
char array[]={'F','G','H'};
    for(char i : array)
       System.out.print(i);
  }}
```

What would the output of the program be?

(a) FGH	(b) hgf	(c) 707172
(d) 102103104	(e) error	

40) Consider the following program written in Java.

```java
class Pair<T>{
    private T first;
    private T second;

    public Pair() { first = null; second = null; }
    public Pair(T firstItem, T secondItem) {
      first = firstItem;
      second = secondItem;
    }
    public void show() {
      System.out.println(first+" "+second);
    }
  }
class Ex19{
public static void main(String args[]){
Pair<String> pair1 = new Pair<String>("Happy", "Day");
   pair1.show();
Pair<int> pair1 = new Pair<int>(1, 2);
   pair1.show();
 }
}
```

Select from among the following, valid statements on the program.

> (a) The program can be compiled but cannot be executed.
> (b) The program cannot be compiled successfully.
> (c) class Pair<T> is incorrect.
> (d) Pair<String> pair1 = new Pair<String>("Happy", "Day"); is incorrect.
> (e) Pair<int> pair1 = new Pair<int>("Happy", "Day"); is incorrect.

41) Select from among the following, (a) valid operation/s/ to concatenate two more string objects.

> | | | |
> |---|---|---|
> | (a) + | (b) ++ | (c) & |
> | (d) conCat | (e) \|\| | |

42) Consider the following program written in Java.

```java
class Ex21 {
        public static void main(String args[])  {
            char chars[] = {'f', 'g', 'h'};
            String s = new String(chars);
            System.out.println(s);
        }
    }
```

What would the output of the program be?

> | | | |
> |---|---|---|
> | (a) fgh | (b) f | (c) 102103104 |
> | (d) 102 | (e) error | |

43) Consider the following program written in Java.

```
              class Ex22 {
    public static void main(String args[])
    {
        String obj = "UNIVERSITY";

        System.out.println(obj.charAt(3));

    }
  }
```

What would the output of the program be?

(a) 3	(b) I	(c) V
(d) UNI	(e) error	

44) Consider the following phrase on Java noting the blank.

"In Java …................... package is used by compiler itself. So it does not need to be imported for use"

Select from among the following correct option to fill the blank.

(a) applet	(b) io	(c) lang
(d) net	(e) util	

45) Select from among the following, the key word which can be used by a class to use an interface which has been defined previously.

(a) extends	(b) new	(c) generic
(d) implements	(e) inherit	

****