UNIVERSITY OF COLOMBO, SRI LANKA

UNIVERSITY OF COLOMBO SCHOOL OF COMPUTING

DEGREE OF BACHELOR OF INFORMATION TECHNOLOGY (EXTERNAL)

Academic Year 2008 /2009 – 1st Year Examination – Semester 2

IT2203 - Programming I

08th August 2009

(TWO HOURS)

Important Instructions :

- 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 one or more 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) Which of the following operators is/are having higher precedence than the && operator?

(a) ~	(b) ? :	(c) /
(d) <<	(e) [ ]	

2) Select from among the following, comments which are accepted in Java.

(a) //comment here	(b) ///comment here	(c) /*comment here */
(d) /** comment here */	(e) /comment here	

3) Select from among the following, valid number literals in Java.

(a) "-12L"	(b) 12.5	(c) 12.5F
(d) 0xCAB	(e) -12L	

4) Which of the following statements is/are correct on variable declaration in Java?

(a) String myFriend = "Vimukthi";	(b) float newValue = 35.5f;
(c) int firstName = "Oshadha";	(d) char *Symbol = '*';
(e) boolean value = False;	

Consider the following Java program to answer questions 5 and 6.

```
public class Friend{
public static void main(String val[]){
  String fr1 = "Oshadha/n";
  String fr2 = "Shanaka";
       System.out.print(fr1 + "and" + fr2 + "are good friends");
   }}
```

5) Select from among the following, key words available in Java which have been used in the above program.

(a) public	(b) main	(c) print
(d) static	(e) class	

6) What would the output of the program be, if the program is executed successfully?

(a) Oshadha Shanaka are good friends	(b) Oshadha
(c) Oshadha/nandShanakaare good friends	(d) Oshadha andShanakaare good friends
(e) Shanaka	

Use the following declarations and initializations to evaluate the Java expressions given in questions 7 - 11. Assume that each expression is evaluated separately in the program.

```
int x = 10,y = 15,z = 20;
float value1 = 2.5f, value2 = 1.5f;
char ch = 'B';    // note that the ASCII value of B is 66
boolean a = false;
```

7) System.out.println(x + value1 / x * y);

(a) false	(b) 13.0	(c) 13.25
(d) 13.5	(e) 13.75	

8) System.out.println(a = a);

(a) false	(b) true	(c) 20
(d) 10	(e) error	

9) System.out.println(a == a);

(a) false	(b) true	(c) 10
(d) 20	(e) error	

10) System.out.println(a + x - y);

(a) false	(b) true	(c) 65
(d) false 5	(e) error	

11) System.out.println(ch / x + x);

(a) false	(b) true	(c) 65
(d) 16	(e) error	

12) Consider the following program written in Java.

```
public class Ex18{
 public static void main(String a[]){
   final double var = 25.4;
     var = 30;
     System.out.println(var * 10);
   }}
```

When the program was compiling an error was generated. Select from among the following the programming statement/s which could be the cause/s for the error generated.

(a) public class Ex18	(b) public static void main(String a[])
(c) final double var = 25.4;	(d) var = 30;
(e) System.out.println(var * 10);	

Consider the following Java program to answer questions 13 and 14.

```
public class Ex19{
public static void main(String args[]){
    short value = 50;
     value = value * 2;
 System.out.println(value);
 }
}
```

13) When the program was compiling, an error was generated. Select from among the following the programming statement/s which could be the cause/s for the errors generated.

(a) public class Ex19	(b) String args[]
(c) short value = 50;	(d) value = value * 2;
(e) System.out.println(value);	

14) In order to correct the error generated, statements in the program can be replaced with new statements as shown in the following table.

Row number	Existing statement	New statement
1	short value = 50;	int value = 50;
2	value = value * 2;	value = (short)(value * 2);
3	System.out.println(value);	System.out.println((int)value);
4	short value = 50;	char value = 50;
5	value = value * 2;	value = (int)value * 2;

Select from among the following, the correct row number/s which is/are suitable for eliminating the error.

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

Use the following declarations and initializations to evaluate the Java expressions given in questions 15 - 19. Assume that each expression is evaluated separately in the program.

```
char c='D'; // note that ASCII value of D is 68
int num1 = 10, num2 = 12, num3 = 1;
float x = 2.5f, y = 3.5f;
```

15) System.out.println(x >= 6 && num1 < num3);

(a) true	(b) false	(c) error
(d) 2.5	(e) 10	

16) System.out.println(++x + 6 - num1-- + num3);

(a) true	(b) false	(c) error
(d) 0.5	(e) 1.0	

17) System.out.println(num1 | num2 | num3);

(a) true	(b) false	(c) error
(d) 12	(e) 15	

18) System.out.println(num1 >= num2 <= num3);

(a) true	(b) false	(c) error
(d) 4	(e) 3.5	

19) System.out.println(num1 > num2 ? num1 : num2);

(a) true	(b) false	(c) error
(d) 10	(e) 12	

20) Select from among the following, the key word/s which can be used within a *for* control structure.

(a) break	(b) continue	(c) class
(d) if	(e) else	

Consider the following program written in Java using a notepad and answer questions 21 and 22.

```
public class Ex27{
public static void main(String args[]){
  int x = 0 , y = 0, z = 0;

   if(x == 1)
   if(y == 2)
   if(z == 3)
     System.out.println("%%%");
   else
     System.out.println("***");
     System.out.println("###");

 }
}
```

21) What would the output of the program be if it is executed sucessfully?

(a) %%% ###	(b) ***	(c) ###
(d) *** ###	(e) error	

22) Assume that one has changed the variable initialization as follows:

```
int x = 1 , y = 2, z = 3;
```

What would the intended output of the program be?

(a) %%% ###	(b) ***	(c) ###
(d) *** ###	(e) error	

23) Consider the following program written in Java.

```
public class Ex29{
public static void main(String args[]){
    int sum = 0;
  for(int i= 0 ; i <= 4 ; i++)
        sum += i ;
        System.out.print(sum);
    }
   }
```

What would the intended output of the program be?

(a) 10	(b) 6	(c) 013610
(d) 0136	(e) error	

24) Consider the following program written in Java.

```
public class Ex30{
public static void main(String args[]){
    int sum = 0;
start:
  for(int r = 0 ; r < 2 ; r++){
    for(int c = 0 ; c < 4 ; c++){
        if( c == 2) break start;
          System.out.print("*");
             }
          System.out.println();
         }
    } }
```

Select from among the following, correct definitions on some words/characters written in the program.

(a) The word *sum* is an inner class name.	(b) The word *start* is a label name.
(c) The word *args[]* represents an array name.	(d) The word *c++* calls another program.
(e) The character *c* represents a class variable.	

25) Consider the following program written in Java and note the expression having the comment describing it as a "ßconditional expression".

```
public class Ex31{
public static void main(String args[]){
    int number = 12345, a = 0;
      while(number > 0)// ßconditional expression
        {
          a = number % 10;
          number = number / 10;
          System.out.print(a);
         }
       } }
```

What would the output of the program be, if it is executed successfully?

(a) 12	(b) 1234	(c) 12345
(d) 54321	(e) 123	

26) Select from among the following, the correct expression/s which can be used to replace the expression having the comment in the program with the note "ß`conditional expression`" to get the same output from the program.

(a) while(number != 0)	(b) while(a == 0)	(c) while(a == number)
(d) while(a != 0)	(e) while(number >= 1)	

27) Consider the following program written in Java.

```
public class Ex33{
 public static void main(String args[]){
   int numAr[] = {6,7,8,9};
     for(int k = 0 ; k < numAr.length ; k++){
        if(numAr[k] % 2 == 0)
           numAr[k] = 10;   }
     for(int k = 0 ; k < numAr.length ; k++)
       System.out.print(numAr[k]);
  } }
```

What would the output of the program be?

(a) 6,7,8,9	(b) 6789	(c) 107109
(d) 9876	(e) 10101010	

28) Consider the following program written in Java.

```
public class Ex34{
 public static void main(String args[]){
   int numAr1[] = {6,7,8,9};
   int numAr2[] = new int[4];
     for(int k = 3,j = 0 ; j < numAr1.length ; j++,k--){
            numAr2[j] = numAr1[k]; }
     for(int k = 0 ; k < numAr2.length ; k++)
       System.out.print(numAr2[k]);  } }
```

What would the output of the program be?

(a) 6,7,8,9	(b) 6789	(c) 107109
(d) 9876	(e) 10101010	

29) Consider the following program written in Java.

```
public class Ex35{
public static void main(String args[]){
  String names[][] = {{"Oshadha","Vimukthi","Anjalee"},
                      {6,7,5},
                      {'a','b','c'}};
  for(int a = 0 ; a < 3 ; a++)
     System.out.print(names[a][a]);
 }}
```

What would the output be when the program is executed?

(a) "Oshadha","Vimukthi","Anjalee"	(b) 675
(c) Oshadha7c	(d) OshadhaVimukthiAnjalee
(e) error	

30) Consider the following program written in Java.

```
public class Ex36{
public static void main(String args[]){
char ch[] = {'g','a','t','e','m','a','n'};
int j = 6;
       do{
         System.out.print(ch[j]);
         j--;
          }while(j>=0);
      }
  }
```

When the program was compiling, an exception was generated. Select from among the following, the package in which the generated exception class is defined.

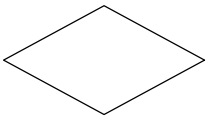
(a) io	(b) lang	(c) applet
(d) maths	(e) awt	

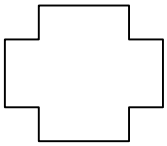
31) Select from among the following, sub classes of RuntimeException class which are defined in the lang package.

(a) ArithmeticException	(b) ArrayStoreException
(c) ClassCastException	(d) SecurityException
(e) IllegalStateException	

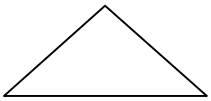
32) Select from among the following, notations which are **not** valid in Flow Charts.

(a) 

(b) 

(c) 

(d) 

(e) 

33) Consider the following segment of a program written in Java.

```
StringBuffer str= new StringBuffer("University");
System.out.println(str.length() +" "+str.capacity());
```

If the program is executed, what would the output of the program be?

(a) 10 10	(b) error	(c) 10 32
(d) 10 16	(e) 10 26	

34) Consider the following segment of a program written in Java.

```
String a = "Vimukthi";
int index = -1, count = 0;
while((index = a.indexOf('i',++index))>-1)
 {
   count++;
  }
System.out.println(count);
```

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

(a) 1	(b) 2	(c) 3
(d) error	(e) t	

Consider the following program written in Java using a notepad and answer questions 35 and 39.

```
public class A{
private int a;
private String b;
private static float c;

public A(){}
public A(int j, String m){a = j; b = m;}

public void setA(int a){a = a;}
public int getA(){return a;}
public void setB(String k){b = k;}
public String getB(){return b;}
public void setC(float y){c = y;}
public float getC(){return c;}
}

public class DriverProgram{
public static void main(String args[]){
   A obj = new A();
   obj.setA(21);
 }
}
```

35) Select from among the following, the instance variable declaration/s which is/are available in the program.

(a) private int a;	(b) private String b;
(c) private static float c;	(d) public A(){}
(e) public int getA(){return a;}	

36) Select from among the following, the class variable declaration/s which is/are available in the program.

(a) private int a;	(b) private String b;
(c) private static float c;	(d) public A(){}
(e) public int getA(){return a;}	

37) Select from among the following, (a) signature/s of constructor's method(s) written in the program.

(a) public String getB(){return b;}	(b) public void setC(float y){c = y;}
(c) public A(int j, String m){a = j; b = m;}	(d) public A(){}
(e) public int getA(){return a;}	

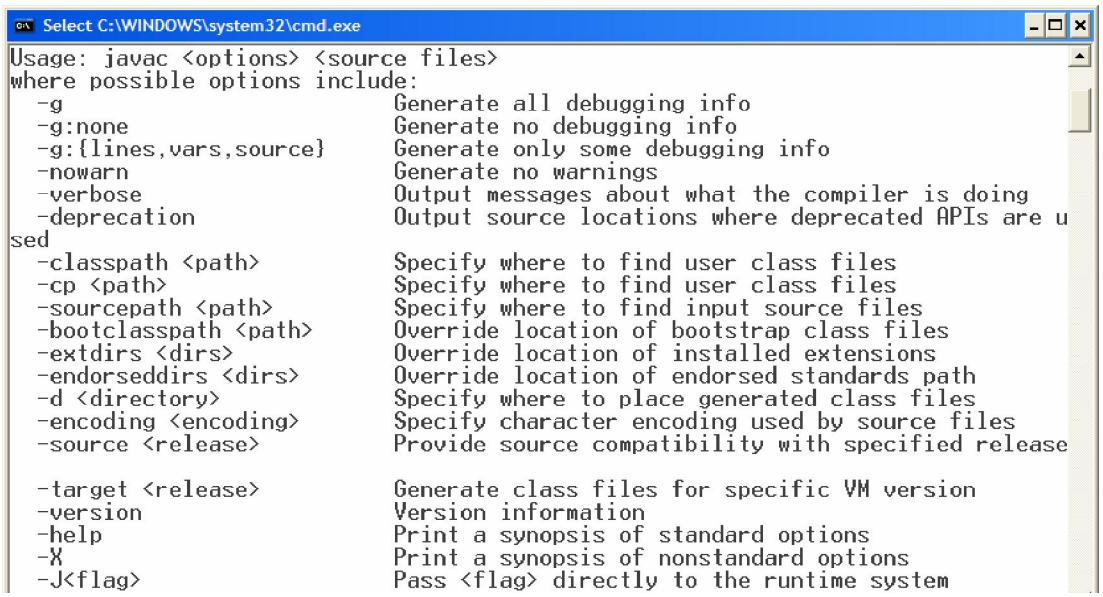
38) Select from among the following, signatures of user defined methods written in the program.

(a) public String getB(){return b;}	(b) public void setC(float y){c = y;}
(c) public void setA(int a){a = a;}	(d) public A(){}
(e) public int getA(){return a;}	

39) After saving the program, it was compiled and an error was generated. Select from among the following the statement/s which could be the cause for the generated error.

(a) public void setA(int a){a = a;}	(b) public class DriverProgram
(c) public class A	(d) public A(){}
(e) public int getA(){return a;}	

40) Consider the following segment of message displayed in the command prompt after typing a command in the Windows environment.



Select from among the following, the command which triggered to output the message.

(a) java	(b) javac	(c) java Test
(d) javac Test.java	(e) java Test.java	

Consider the following Java program to answer questions 41 - 45 . Line numbers are not part of the program.

Line Numbers	Program statements
1	`public class FirstProgram{`
2	`public void static main(String args []){`
3	`  int number = 5,number = 2;`
4	`  float value = 45.0;`
5	`    for(int i = 0 ; i< 3 ; i++)`
6	`       System.out.println("numbers are:");`
7	`       System.out.println(i);`
8	`  }`
9	`}`

41) After saving the file correctly, when compiling, the following segment of message appeared in the command prompt.

```
FirstProgram.java:13: '{' expected
}
^
2 errors
```

Select from among the following, the line number/s which represent(s) the erroneous code segment/s.

(a) 2	(b) 4	(c) 6
(d) 8	(e) 9	

42) After correcting the error which appeared in the question number 41, the program was compiled again. The following error was displayed in the command prompt.

```
FirstProgram.java:4: number is already defined in main(java.lang.String[])
  int number = 5,number = 2;
                 ^
```

Select from among the following, the suitable statement/s which can be used to correct the error.

(a) int number1 = 5, number2 = 2;	(b) int number, number; number = 5; number = 2;
(c) int number1, number2; number1 = 5; number2 = 2;	(d) int number = 5; int number = 2;
(e) int number1 = 5; int number2 = 2;	

43) After successfully correcting the errors in questions number 41 and 42, the program was compiled again. The following message was displayed in the command prompt.

```
FirstProgram.java:5: possible loss of precision
found   : double
required: float
```

Select from among the following, the line number/s which is/are responsible for the error caused.

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

44) Select from among the following, the valid statements which can be used to fix the error.

(a) float value = 45.0f;	(b) long value = 45.0;
(c) double value = 45.0;	(d) float value = 45;
(e) int value = 45.0;	

45) After successfully correcting the errors in question numbers 41 , 42 and 43, the program was compiled again. The following message was displayed in the command prompt.

```
D:\java\2009 Programming 1>javac FirstProgram.java
FirstProgram.java:10: cannot find symbol
symbol  : variable i
location: class FirstProgram
     System.out.println(i);
                        ^
1 error
```

Select from among the following, the line number/s which is/are responsible for the error caused.

(a) 3	(b) 4	(c) 5
(d) 6	(e) 7	

****