



UNIVERSITY OF COLOMBO, SRI LANKA

UNIVERSITY OF COLOMBO SCHOOL OF COMPUTING

DEGREE OF BACHELOR OF INFORMATION TECHNOLOGY
Academic Year 2017 – 1st Year Examination – Semester 2

IT2205 - Programming I
11th November, 2017
(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 **11 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) Select from among the following, correct options which can be considered as logical operators in Java.

(a)	(b)	(c) &
(d) &&	(e) !	

- 2) Java programming language is a language which is

(a) case sensitive.	(b) object oriented.
(c) signed.	(d) multithreaded.
(e) platform independent.	

Consider the following program written in Java to answer for questions 3 - 4.

```
public class Ex2 {  
  
    public static void main(String args[]){  
        byte num;  
        int value = 258;  
        double no = 325.59;  
  
        num = (byte) value;  
        System.out.print(num);  
  
        value = (int) no;  
        System.out.print(value);  
  
    }  
}
```

- 3) What would the output of the program be?

(a) 2325	(b) 2323
(c) 2523	(d) 2222
(e) 7878	

- 4) Select from among the following, the valid option which explains the conversion occur here in the program.

(a) Automatic conversion	(b) casting
(c) polymorphism	(d) assignment
(e) comparing	

- 5) In the beginning, Java was created in order to

(a) connect many household machines.	(b) perform operations on the Internet.
(c) create high performance OS.	(d) send the path finder to the mars.
(e) compete with Android.	

- 6) Select from among the following, those which **cannot** be considered as primitive data types in Java.

(a) main	(b) void	(c) float
(d) static	(e) boolean	

- 7) Select from among the following, correct option(s) which illustrate/s correct long type literals in Java.

(a) 0x99ffL	(b) ABCDEFG	(c) 0x99ffa
(d) 99671246	(e) 132426677L	

- 8) Consider the following program written in Java.

```
public class Ex8{
    public static void main(String args[]){
        System.out.println("In first main()");
    }
    public static void main(int args[]){
        System.out.println("a");
    }
}
```

What would the output of the program be?

(a) Code will not compile and will give "Duplicate main() method declaration" error.
(b) Code will compile correctly but will give a runtime exception.
(c) Code will compile correctly and will print "In first main()" (without quotes) when it is run.
(d) Code will compile correctly and will print "a" (without quotes) when it is run.
(e) Source code cannot be saved since there are two main methods in the program.

- 9) Default access modifier is available to

(a) all the packages.	(b) all the methods.	(c) only within the package.
(d) only within the class.	(e) all the systems.	

- 10) Consider the following program written in Java.

```
public class Ex10{
    public static void main(String args[]) {
        int a[] = {1,2,3,4,5};
        int d[] = a;
        int sum = 0;
        for (int j = 0; j < 3; ++j)
            sum += (a[j] * d[j + 1]) + (a[j + 1] * d[j]);
        System.out.println(sum);
    }
}
```

What would the output of the program be?

(a) 10	(b) 20	(c) 30
(d) 40	(e) 50	

- 11) Select from among the following, the operator(s) used to invert all the digits in a binary representation number.

(a) ~	(b) >>	(c) <
(d) !	(e) &	

Use the following declarations and initializations to evaluate the Java expressions given in questions 12 - 17. Assume that each expression is evaluated separately in the program.

```
float value1 = 2.0f;  
int num1 = 10;  
String str = "100";  
char ch = 'B'; // note that the ASCII value of A is 65
```

Select from among the given options, the correct output for each of the evaluations 12 – 17.

- 12) `System.out.println(str+ch);`

(a) 165	(b) 100A	(c) 166
(d) 100B	(e) error	

- 13) `System.out.println(ch+value1);`

(a) 65.0	(b) 65	(c) 68.0
(d) 68	(e) error	

- 14) `System.out.println(ch<str);`

(a) false	(b) true	(c) 65
(d) 66	(e) error	

- 15) `System.out.println(num1 > value1*5);`

(a) false	(b) true	(c) 76
(d) 75	(e) error	

- 16) `System.out.println(str++);`

(a) false	(b) true	(c) 100
(d) 101	(e) error	

- 17) `System.out.println(!(num1+ch));`

(a) false	(b) true	(c) 66
(d) 75	(e) error	

- 18) Select from among the following, the key word(s) which is/are **not** a part of exception handling in Java programming language.

(a) try	(b) catch	(c) thrown
(d) finally	(e) final	

- 19) Consider the following program written in Java.

```
public class Ex19 {
    public static void main(String args[]) {
        try {
            int i, sum;
            sum = 10;
            for (i = -1; i < 3 ;++i)
                sum = (sum / i);

        }
        catch(ArithmeticException e) {
            System.out.print("0");
        }
        System.out.print(sum);
    }
}
```

What would the output of the program be?

- | | | |
|------------------------|---------|--------|
| (a) Run time error | (b) 0 | (c) 05 |
| (d) Compile time error | (e) 005 | |

- 20) Select from among the following, (a) valid key word(s) which prevent(s) overriding methods in the super class.

- | | | |
|-----------|--------------|------------|
| (a) final | (b) public | (c) static |
| (d) void | (e) abstract | |

- 21) What will be the version which is referred, when an overridden method is called from within a subclass?

- | |
|--|
| (a) super class |
| (b) sub class |
| (c) compiler will choose the method |
| (d) interpreter will choose the method |
| (e) the programmer will decide the particular method |

Applicants are advised to read questions 22 – 27 keeping in mind that these questions have connections to another.

- 22) Consider the following segment of Java class declaration.

```
public abstract class Employee{
}
```

Select from among the following, the valid statement(s) allowed within the class Employee.

- | |
|--|
| (a) private int age; |
| (b) public void setAge(int age){this.age=age;} |
| (c) public int getAge(){return age;} |
| (d) public abstract void earn(); |
| (e) Employee(){} |

- 23) Consider the following segment of Java class declaration.

```
public class Teacher extends Employee{  
}
```

Select from among the following, valid option(s) that must be selected in the class declaration which is required by the compiler.

- | |
|--|
| (a) private String name;
(b) public void setName(String name){this.name=name;}
(c) public String getName(){return name;}
(d) public void earn(){return monthlySalary};
(e) Teacher(){} |
|--|

- 24) Select from among the following, valid option(s), which can be considered logically within the class declaration Teacher which is a sub class of the Employee class. Even though the given programming statement(s) are correct one has to consider the suitability of them concerning Object oriented features.

- | |
|--|
| (a) private String name;
(b) public void setName(String name){this.name=name;}
(c) public String getName(){return name;}
(d) public void earn(){return monthlySalary};
(e) Teacher(){} |
|--|

- 25) Consider the following segment of class declaration.

```
public final class Clerk extends Employee(){}  
  
Subsequently consider the following class declaration also  
  
public class PayrollClerk extends Clerk(){}  
  
After that one has created an object of the class PayrollClerk as follows.  
  
PayrollClerk obj1= new PayrollClerk();  
  
At the time of compiling, an error was generated. Select from among the following, valid option(s) which shows the most close reason(s) for the error generated.
```

- | | | |
|------------------------|-----------------------|-----------|
| (a) new
(d) extends | (b) final
(e) obj1 | (c) class |
|------------------------|-----------------------|-----------|

- 26) One has made the following class declaration.

```
public class PartTimeTeacher extends Teacher,Clerk{    }
```

Select from among the following, the **invalid** object oriented feature, which has been tried to introduce in the above class declaration.

- | | | |
|--|--|-------------------|
| (a) Data abstraction
(d) Multiple inheritance | (b) Information hiding
(e) Polymorphism | (c) Encapsulation |
|--|--|-------------------|

- 27) Select from among the following, the valid object declaration(s) which is/are valid in Java programming language.

(a) Clerk obj1= new Clerk(); (b) Teacher obj2= new Teacher(); (c) Employee obj3= new Employee(); (d) PartTimeTeacher new = new PartTimeTeacher(); (e) Employee obj5= new Teacher();

- 28) Select from among the following conditions that are **not** allowed in Java programming language assuming var1, var2 and var3 variables are declared correctly in the program.

(a) var1 == var2	(b) var1 <= var3	(c) var1 > var2 > var3
(d) var2 => var3	(e) var1++	

- 29) Consider the following program written in Java.

```
public class Ex29 {  
    public static void main(String[] args) {  
        int sum = 0;  
        for (int i = 0, j = 0; i < 5 & j < 5; ++i, j = i + 1)  
            sum += i;  
        System.out.println(sum);  
    }  
}
```

What would the output of the program be?

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

- 30) Consider the following program written in Java.

```
public class Ex30 {  
    public static void main(String[] args) {  
        int number1 = 5;  
        int number2 = 10;  
        first: {  
            second: {  
                third: {  
                    if (number1 == number2 >> 1)  
                        break second;  
                }  
                System.out.println(number1);  
            }  
            System.out.println(number2);  
        } } }
```

What would the output of the program be?

(a) 7	(b) 8	(c) 9
(d) 10	(e) error	

- 31) Consider the following program written in Java.

```
class Ex31{
    public static void main(String args[]){
        String s1 = "Hello i love java";
        String s2 = new String(s1);
        System.out.println((s1 == s2) + " " + s1.equals(s2));
    }
}
```

What would the output of the program be?

- | | | |
|----------------|-----------|--------|
| (a) false true | (b) 18 | (c) 16 |
| (d) true false | (e) error | |

- 32) Consider the following program written in Java.

```
class Ex32{
    public static void main(String args[]){
        int x=7;
        if(x==2); // Note the semicolon
        System.out.print("Manuja ");
        System.out.print("Gunasena ");
    }
}
```

What would the output of the program be?

- | | | |
|---------------------|--------------|-------|
| (a) Manuja | (b) Gunasena | (c) 7 |
| (d) Manuja Gunasena | (e) error | |

- 33) Consider the following program written in Java.

```
public class Ex33{
    public static void main(String[] args){
        int x = 3, result = 4;
        switch(x + 3){
            case 6: result = 0;
            case 7: result = 1;
            default: result += 1;
        }
        System.out.println(result);
    }
}
```


What would the output of the program be?

- | | | |
|-------|-----------|-------|
| (a) 2 | (b) 3 | (c) 4 |
| (d) 6 | (e) error | |

34) Consider the following program written in Java.

```
public class Ex34{
    public static void main(String args[]){
        int a, b=1;
        a = (b>1)?2:1;
        switch(a){
            case 0: System.out.println(0); break;
            case 1: System.out.println(1);
            case 2: System.out.println(2); break;
            case 3: System.out.println(3); break;
        }
    }
}
```

What would the output of the program be?

- | | | |
|-------|-----------|--|
| (a) 1 | (b) 2 | (c) 4 |
| (d) 3 | (e) error |  |

35) Select from among the following, the valid key word(s) which is/are used by an interface to use another interface which is defined previously.

- | | | |
|---------------|-------------|----------------|
| (a) interface | (b) extends | (c) implements |
| (d) try | (e) class | |

36) Select from among the following, (a) valid abstract method declaration/s in an abstract class.

- | |
|---------------------------------------|
| (a) public abstract void method1(){ } |
| (b) public void abstract method1(); |
| (c) public abstract void method1(); |
| (d) public void method1(); |
| (e) public abstract method1(); |

37) Select from among the following, the correct method to display a string in an applet.

- | | | |
|------------------|--------------|---------------|
| (a) display() | (b) print() | (c) println() |
| (d) drawstring() | (e) String() | |

Consider the following program written in Java to answer questions 38 – 39.

```
class Test {  
    public static void main(String[] args) {  
        String chars[] = { "A", "B"};  
  
        for (int sample: chars) {  
            System.out.print(sample);  
        }  
    }  
}
```

38) What would the output of the program be?

- | | | |
|----------|-------------|---------------|
| (a) 6566 | (b) "A" "B" | (c) languages |
| (d) int | (e) error | |

39) Assume that one needs to get the output of the program as A and B (A B). Select from among the following, the programming statement(s) which is/are needed to be changed.

- | | | |
|-------------------------------|------------------|--------------------|
| (a) for (int sample: chars) | (b) class Test | (c) String chars[] |
| (d) System.out.print(sample); | (e) { "A", "B"}; | |



40) Select from among the following, the valid option(s) which store(s) all the standard classes like String, System in Java.

- | | | |
|--------------|----------|----------|
| (a) applet | (b) io | (c) lang |
| (d) standard | (e) util | |

41) Select from among the following, valid escape sequences in Java.

- | | | |
|--------|--------|--------|
| (a) \\ | (b) // | (c) /n |
| (d) \r | (e) \" | |

42) Select from among the following, (a) valid option(s) which is/are **not** interfaces in Java collection framework.

- | | | |
|----------------|---------|----------|
| (a) Collection | (b) Set | (c) List |
| (d) Group | (e) Map | |

43) Select from among the following, the valid definition(s) of the @Deprecated annotation.

- | |
|--|
| (a) It indicates that the marked element should no longer be used. |
| (b) It informs the compiler that the element is meant to override an element declared in a superclass. |
| (c) It tells the compiler to suppress specific warnings that it would otherwise generate. |
| (d) It asserts that the code does not perform potentially unsafe operations on its varargs parameter |
| (e) It specifies how the marked annotation is stored. |

44) Consider the following program written in Java.

```
public final class Ex44 {  
    public static <T> T max(T x, T y) {  
        return x > y ? x : y;  
    }  
}
```

When the program is compiled, there were errors generated. Select from among the following, the valid option(s) which caused the generation of those errors.

- | | | |
|-------------------|-----------------------|---------------------------|
| (a) final class | (b) public static <T> | (c) return x > y ? x : y; |
| (d) max(T x, T y) | (e) Type safety | |

45) Consider the following program written in Java.

```
public class Ex45 {  
    public static void main(String args[]){  
        String str1 = "Hello";  
        System.out.println(str1.indexOf('e'));  
    }  
}
```

What would the output of the program be?

- | | | |
|-------|-----------|-------|
| (a) 1 | (b) 2 | (c) 4 |
| (d) 5 | (e) error | |
