

Introduction to Object-Oriented Programming

B

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Test - 7th of November 2023, FIIT STU

Name and surname:

1	
2	
3	
4	
5	
6	

Test lasts 30 minutes. In questions 1-6 there is always only one correct option. Write the answers into the table. Only answers in the table will be considered. In case of making corrections, mark clearly which answer is valid. Each correct answer has its value indicated in the question. An answer that is incorrect, ambiguous, or incomplete will be marked with 0 points. The work out is not considered. Only undamaged papers will be accepted.

1. (1b) Given is the following code in Java:

```
public class A {
    void m(int i) { }
    void m(int i, int j) { }
}

public class B extends A {
    void n(int i) { }
    void m(int i, int j) { }
}
```

Which of the following statements is correct?

- (a) A.m(int i, int j) overrides A.m(int i)
- (b) B.m(int i, int j) overloads A.m(int i)
- (c) B.m(int i, int j) overloads B.n(int i)
- (d) B.n(int i) overrides A.m(int i)
- (e) B.n(int i) overloads A.m(int i)
- (f) B.m(int i, int j) overrides B.n(int i)
- (g) B.m(int i, int j) overrides A.m(int i)

2. (2b) Given is the following code in Java:

```
package sk.stuba.fiit.priklad05a;
public class A {
    protected int i = 10;
}

package sk.stuba.fiit.priklad05b;
import sk.stuba.fiit.priklad05a.*;
public class B extends A {
    public void access() {
        new A().i++;
        new B().i++;
    }
}
```

Incrementation of i attribute in method access() will be:

- (a) Successful for instances of A and B classes
- (b) Unsuccessful for instances of both classes A and B
- (c) Successful for instances of class A but not class B
- (d) Successful for instances of class B but not class A
- (e) Method access() is not such accessible
- (f) None of above

3. (2b) Enter what the following code prints, into the table to the task index:

```
public class M {
    public M() {
        System.out.print("M");
    }

    void m(){
        System.out.print("N");
    }

    static void n() {
        System.out.print("O");
    }
}

public class N extends M {
    public N() {
        System.out.print("O");
    }

    void m() {
        System.out.print("N");
    }

    static void n() {
        System.out.print("M");
    }
}

public class O extends N {
    public O() {
        System.out.print("M");
    }

    void m(){
        System.out.print("N");
    }

    static void n() {
        System.out.print("O");
    }
}

public class Main {
    public static void main(String[] args)
    {
        new O().m();
        new M();
        N.n();
        new N().m();
        O.n();
        new O();
    }
}
```

4. (1b) Given is the following code in Java and distribution of classes into packages according to figure 2:

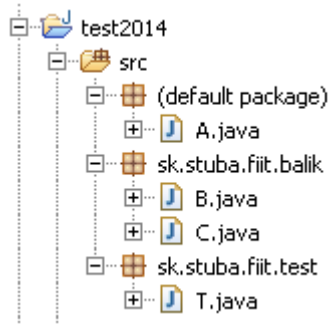


Figure 2.

```
//...file C.java
public class C {
    private int ci=1;
    protected int cj=2;
    public int ck=3;
    int cl=4;
}
//...file A.java
import sk.stuba.fiit.balik.C;
public class A extends C {
    public int accessTest() {
        ...todo...
    }
}
```

Correct access to the attribute `cj` of the `C` class from `accessTest()` method of class `A` is:

- (a) `System.out.println(cj);`
- (b) `System.out.println(A().cj);`
- (c) `System.out.println(C().cj);`
- (d) `System.out.println(new C().cj);`
- (e) `System.out.println(new T().cj);`
- (f) None of above

5. (2b) When there is an implicit constructor in the supertype or there is a constructor without a parameters

- (a) Constructor in the subtype must not be implicit
- (b) Constructor in the subtype must have parameters
- (c) Constructor in the subtype must not have any parameters
- (d) Constructor in the subtype can be implicit
- (e) None of above

6. (2b) Given is the following diagram in UML:

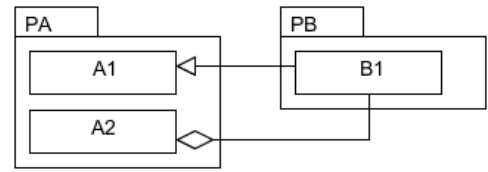


Figure 1.

Which of the following can represent the relationship between class `A2` and class `B1` from Figure 1?

- (a) `new B1();`
- (b) `A2 a2 = new B1();`
- (c) `new B1().someMethod(A2 b1);`
- (d) `public class A2 extends B1 { ... }`
- (e) `public class B1 extends A1 { ... }`
- (f) `new A2().someMethod(B1 a2);`
- (g) `A2 b1 = new B1();`

total 10 points

Solution:

1	b	1b
2	d	2b
3	MOMNMMMONOMOM	2b
4	a	1b
5	d	2b
6	f	2b