

NAME: \_\_\_\_\_

# Programming Technologies

Lecture Exam

02.06.2016

**Exercise 1.** Answer the following questions:

(max 10p)

1. What are the three basic forms of annotations?
2. What are meta annotations?
3. What is a default method in a Java 8 interface?
4. What is a functional interface (in Java 8)?
5. What is a software process?
6. What is a (design) pattern?
7. What does the MVC abbreviation means?
8. What are these: MySQL Cluster CGE, PostgreSQL, H2?
9. What is persistence?
10. What is a software license?

[Type here]

**Exercise 2.** Examine the source codes and answer the questions:

(max 12p)

**Question 1:**

The following two classes are given:

```
public class MyClass1 {
    public int f1;
}

public class MyClass2 extends MyClass1{
    private String f1;
    private int f2;
}
```

What will be printed out if we run the main method with the following two lines? Why?

```
Class c = MyClass2.class;
System.out.println(c.getField("f1").getType());
```

**Answer:** \_\_\_\_\_

**Question 2:**

The following annotation type is given:

```
public @interface MyAnnotation {
    int value() default 5;
    int value2() default 6;
}
```

If we use the annotation in the following way, what will be the value of the “value” and the “value2” attributes?

```
public class MyClass3 {
    @MyAnnotation(0)
    public int a;
}
```

**Answer:** \_\_\_\_\_

[Type here]

### Question 3:

Given the following class:

```
public class MyClass4 implements AutoCloseable{
    @Override
    public void close(){
        System.out.println("Apple");
    }
}
```

What will be printed out by the following lines? Why?

```
try (MyClass4 mc4 = new MyClass4()){
    mc4.close();
}
```

**Answer:** \_\_\_\_\_

### Question 4:

What will be printed out as a result of the following code?

```
List<String> myList = Arrays.asList("a1", "b1");
myList.stream()
    .map(s -> {
        System.out.println(s);
        return s.toUpperCase();
    })
    .map(s -> {
        System.out.println(s);
        return s.substring(0,1);
    })
    .forEach(System.out::println);
```

**Answer:** \_\_\_\_\_

[Type here]

### Question 5:

What date will be printed out to the output as a result of the following code?

```
LocalDate ld = LocalDate.of(1848, Month.MARCH, 15);
ld.plusYears(8);
System.out.println(ld.withMonth(6));
```

**Answer:** \_\_\_\_\_

### Question 6:

The following class is given:

```
import javax.validation.constraints.*;

@javax.persistence.Entity;
public class Employee {
    @id
    private int id;

    @NotNull(message="Employee name must be specified")
    @Size(max=100)
    private String name;

    @NotNull
    @Size(max=40)
    @org.hibernate.validator.constraints.Email
    private String email;
    // ...
}
```

When we set the e-mail address of an employee what constraints will be checked in validation?

**Answer:** \_\_\_\_\_

[Type here]

**Exercise 3.** Choose the right answers. There may be more than one (or even 0) possible right answers. (max 8p)

**Question 1:** In Java reflection

- a) The `getMethods()` method returns a `Method` array
- b) The `getFields()` method returns a `Field` array
- c) The `getModifiers()` method returns a `Modifier` array
- d) The `getInterfaces()` method returns an `Interface` array

**Question 2:** In Java the following built-in meta-annotation types can be used:

- a) `@Deprecated`
- b) `@Documented`
- c) `@Target`
- d) `@Retention`

**Question 3:** A lambda expression

- a) Provides an instance of an anonymous implementation of a functional interface.
- b) May implement more than one methods of a functional interface.
- c) Can be used only in streams.
- d) Can be used in a so called “reverse” way by using the “`<-`” operator

**Question 4:** What sentences are true for `java.util.Date`?

- a) Most constructors are deprecated.
- b) Indexing of months starts from 0.
- c) Indexing of days starts from 0.
- d) The class does not provide methods to manipulate objects.

**Question 5:** From the following attributes which are essential for good software?

- a) Maintainability
- b) Dependability and security
- c) Efficiency
- d) Acceptability

**Question 6:** What are the versions of Design Patterns?

- a) Creational patterns
- b) Process patterns
- c) Behavioral patterns
- d) Structural patterns

[Type here]

**Question 7:** From the followings which is/are not classes

- a) DAO
- b) POJO
- c) ORM
- d) JavaBean

**Question 8:** Which ones are Creative Commons licenses?

- a) CC-LA.
- b) CC-NY.
- c) CC-BY-SA.
- d) CC-BY-NC-ND