

OBJECT ORIENTED PROGRAMMING 2023-2024, AUTUMN

ASSIGNMENT 1

1. Given that $y = ax^2 + 5x + 2$, which of the following are correct Java statements for this equation? Specify the appropriate option.

- a) $y = a * x * x + 5 * x + 2;$
- b) $y = a * x * x + (5 * x) + 2;$
- c) $y = a * x * x + 5 * (x + 2);$
- d) $y = a * (x * x) + 5 * x + 2;$
- e) $y = a * x * (x + 5 * x) + 2;$
- f) $y = a * (x * x + 5 * x + 2);$

2. What does the following code portion print? Write a Java program, containing the following statements. Include into the prepared pdf document the screenshot of the developed program and the screenshots of the program's results.

```
System.out.print("");  
System.out.print("****");  
System.out.print("*****");  
System.out.print("*****");  
System.out.println("");
```

3. What does the following code print? Write a Java program, containing the following statements. Include into the prepared pdf document the screenshot of the developed program and the screenshots of the program's results.

```
System.out.printf("%s\n%s\n%s\n%s\n%s\n", " ", " ****", "*****", " ****", " ");
```

4. (Divisible by 3) Write a Java application that reads an integer and determines and prints whether it's divisible by 3 or not. [Hint: Use the remainder operator. A number is divisible by 3 if it's divided by 3 with a remainder of 0.] Add the screenshot of the developed program and the screenshots of the program's results to the prepared pdf document.

5. (Multiples) Write a Java application that reads two integers, determines whether the first number tripled is a multiple of the second number doubled, and prints the result. [Hint: Use the remainder operator.] Add the screenshot of the developed program and the screenshots of the program's results to the prepared pdf document.

6. (Keyword new) What's the purpose of keyword new? Explain what happens when you use it.

7. (Instance Variables) Explain the purpose of an instance variable.

8. While the number of rabbits on the farm is 1,042, the number of birds is 2,272. In a year, rabbits are to be reproduced with 3.8% and birds – with 1.2%. Write a Java program to find out in how many years there will be more rabbits than birds. Add the screenshot of the developed program and the screenshots of the program's results to the prepared pdf document.