

Categories per Question 2023

Q1. What will be the output of this Java program fragment?

```
int a;  
a=1;  
a=10.5;  
System.out.println (a);
```

Please briefly write what will happen if you think there are mistakes in the snippets.

actual result: error when compiling.

C: warning, output 10. (FCC)

Python: 10.5. (FCC)

	Q1-Type incompatibility	Q1-Type casting misconception	Q1-correct answers	Q1-other	SUM
Java	0	0	1	0	1
C	8	28	5	2	43
python	2	1	1	0	4
J & C	2	1	1	0	4
C & P	5	11	3	0	19
J & P	0	0	1	0	1
J&C&P	1	0	0	0	1
None	2	4	1	0	7
Other	3	5	0	1	9
SUM	23	50	13	3	89

Type incompatibility: 10, 11

Type casting misconception: 10.5, 1

Correct answers: Error.

Q2. What will be the output of this Java program fragment?

```
for (int i=0; i<2; i++)
{
    String var="Hello";
    System.out.println(var);
}
System.out.println(var);
```

actual result: error when compiling.

C: error when compiling. (TCC)

Python: 3 x "Hello" (FCC)

	Q2- For-loop concept misconception	Q2-code execution misconception	Q2-variable scope misconception	Q2-correct answers	Q2-Coding knowledge missing Influenced by C	SUM
Java	0	0	0	1	0	1
C	4	14	16	7	2	43
python	0	2	2	0	0	4
J & C	0	1	1	2	0	4
C & P	2	4	9	3	1	19
J & P	0	1	0	0	0	1
J&C&P	0	0	1	0	0	1
None	1	2	4	0	0	7
Other	0	3	3	0	3	9
SUM	7	27	36	13	6	89

For-Loop concept misconception: 1x Hello and 4x Hello

Code execution misconception: 2x Hello

Variable scope misconception: 3x Hello

Correct answers: program won't compile

Influenced by C: He, hel

Q3. What will be the output of this Java program fragment?

```
int i=0;
while (i<2) {
    System.out.println(i);
    i++;
}
```

actual result: 0 1

C: 0 1 (TCC)

Python: 0 1 (TCC)

	Q3-while-loop concept misconception	Q3- i++ misconception	Q3-while-loop condition misconception	Q3-correct answers	SUM
Java	0	0	0	1	1
C	12	2	2	27	43
python	1	0	0	3	4
J & C	0	0	0	4	4
C & P	4	0	0	15	19
J & P	0	0	0	1	1
J&C&P	0	0	0	1	1
None	3	0	0	4	7
Other	5	0	0	4	9
SUM	25	2	2	60	89

Correct answers: 0 1

While-loop concept misconception: 0, 1, 2, 3

i++ misconception: 0 0, infinite loop 0

While-loop condition misconception: 0 1 2

Q4. What will be the output of this Java program fragment?

```
String a=new String ("lab");
String b=new String ("lab");
System.out.println(a==b);
```

actual result: false

C: True. (FCC)

Python: True (FCC)

	Q4-string comparison unavailable	Q4-value comparison	Q4-"==" return value misconception	Q4-usage of "==" missing	Q4-correct answers	Q4-other	SUM
Java	0	0	0	0	1	0	1
C	5	21	7	3	2	5	43
python	0	2	1	0	0	1	4
J & C	0	2	0	1	1	0	4
C & P	0	14	3	0	1	1	19
J & P	1	0	0	0	0	0	1
J&C&P	0	1	0	0	0	0	1
None	0	5	0	0	0	2	7
Other	2	4	0	2	0	0	8
SUM	8	49	11	6	5	9	88

String comparison unavailable: No output; No output, compiler error; Error (cannot compare strings with "==")

Value comparison: TRUE; 1; TRUE or 1; True or 1 or error message

== return value misconception: lab; Print both strings

Usage of == missing: Wrong expression for printout; new String("lab")==new String("lab"); lab==lab

Correct answers: FALSE

Q5. What will be the output of this Java program fragment?

```
public class Main{
public static int gen(int g, int s) {
int a=g*2;
return a;
}
public static void main(String[] args) {
System.out.println(gen(7,3));
} }
```

actual result: 14

C: 14 (TCC)

Python: 14 (TCC)

	Q5-correct answers	Q5-method parameters misconception	Q5-method creation misconception	Q5-class knowledge missing	Q5-method access knowledge missing	Q5-other	SUM
Java	1	0	0	0	0	0	1
C	32	3	3	0	0	5	43
python	4	0	0	0	0	0	4
J & C	3	0	0	1	0	0	4
C & P	14	3	0	0	1	0	18
J & P	1	0	0	0	0	0	1
J&C&P	1	0	0	0	0	0	1
None	4	0	0	0	0	1	5
Other	7	0	0	0	0	1	8
SUM	67	6	3	1	1	7	85

Correct answers: 14; 14, (warning) s not used.

Method parameters misconception: Error, s not used;

Method creation misconception: Error, no gen;

Class knowledge missing: I think there are issues with how the Main Class is being created and referenced here, but if I'm wrong, then the program should output a line with the text "14".

Method access knowledge missing: a

Q6. What will be the output of this Java program fragment?

```

public class Robot {
    String label;
    int num;
    public Robot(String n, int w){
        this.label=n;
        this.num=w;
    }
    public void agga(){
        num=num+2;
        System.out.println(num);
    }
    public static void main(String []args){
        Robot n1=new Robot("Nori", 51);

```

```

Robot n2=new Robot("Alen", 22);
System.out.println(n1.num);
n2=n1;
n1.agga();
System.out.println(n2.num);
} }

```

actual result: 51 53 53

C: 51 53 51 (FCC)

Python: 51 53 53 (TCC)

	Q6-correct answers	Q6- assignment misconception	Q6-no method knowledge	Q6-Method misconception	Q6-code execution misconception	Q6-Assignment not noticed	Q6-other	SUM
Java	1	0	0	0	0	0	0	1
C	3	8	8	1	6	0	16	42
python	0	2	0	0	1	0	0	3
J & C	1	1	1	0	0	0	1	4
C & P	5	3	3	0	0	2	2	15
J & P	1	0	0	0	0	0	0	1
J&C&P	0	1	0	0	0	0	0	1
None	1	2	0	0	0	1	1	5
Other	0	2	0	0	1	0	3	6
SUM	12	19	12	1	8	3	23	78

Correct answers: 51 53 53

Assignment misconception: 51 53 51

No method knowledge: Don't know .agga, etc.

Method misconception: The code is incorrect, objects Robot don't have an attribute agga.

Code execution misconception: 53 53

Assignment not noticed: 51 53 22

Q7. What will be the output of the following Java program fragments?

```

public class Solution {
    public int[] twoSum(int[] nums, int target) {
        int n = nums.length;
        for (int i = 0; i < n - 1; ++i) {
            for (int j = i + 1; j < n; ++j) {

```

```

        if (nums[i] == target - nums[j]) {
            return new int[]{i, j};
        }
    }
}
return new int[0];
}

public static void main(String[] args) {
    int[] numbers = {1,2,3,4,5,6};
    int target1 = 11;
    Solution s1 = new Solution();
    System.out.println(s1.twoSum(numbers, target1)[0]);
    System.out.println(s1.twoSum(numbers, target1)[1]);
}
}

```

actual result: 4 5

C: Error/Confusion (ATCC)

Python: Error/Confusion (ATCC)

	Q7-correct answers	Q7-misunderstanding of index of arrays	Q7-Confusion of index and element of arrays	Q7-For-loop misunderstanding	Q7-No knowledge of method calling	Q7-Misunderstanding of arrays as parameter of function	Q7-lack of knowledge	Q7-Misunderstanding of ++i	Q7-other	SUM
Java	1	0	0	0	0	0	0	0	0	1
C	0	0	4	2	2	4	17	1	4	34
python	0	0	0	0	0	0	0	0	1	1
J & C	0	0	1	0	0	0	0	0	1	2
C & P	1	0	0	3	1	0	7	0	1	13
J & P	0	1	0	0	0	0	0	0	0	1
J&C&P	0	0	0	0	0	0	1	0	0	1
None	0	1	0	0	0	0	3	0	0	4
Other	0	0	0	0	0	0	2	0	2	4
SUM	2	2	5	5	3	4	30	1	9	61

Correct answers: 4 5

misunderstanding of index of arrays: 3 4

Confusion of index and element of arrays: 5 6

For-loop misunderstanding: 1 1; 6 6; 0 0

No knowledge of method calling: 1 2

Misunderstanding of arrays as parameter of function: N nicht definiert, Fehler; Keine Ausgabe

lack of knowledge: I don't know

Misunderstanding of ++i: ich denke, dass ++i und ++j von der schreibweise falsch sind.

Der neue string müsste i = 5 und j = 6 haben.

Q8. What will be the output of the following Java program fragments?

```
System.out.println("hello" + "there");
```

```
System.out.println("exec" + 3);
```

actual result: hellothere exec3

C: compiling error. (FCC)

Python: hellothere error (FCC)

	Q8-correct answers	Q8- + Concatenation knowledge missing	Q8-Strings and numbers connection misconception	Q8-“+3” misunderstanding	Q8-other	SUM
Java	1	0	0	0	0	1
C	13	1	9	10	3	36
python	2	0	2	0	0	4
J & C	0	0	2	0	1	3
C & P	6	0	6	0	1	13
J & P	1	0	0	0	0	1
J&C&P	1	0	0	0	0	1
None	1	0	0	2	1	4
Other	1	0	2	0	0	3
SUM	26	1	21	12	6	66

Correct answers: hellothere exec3

“+” concatenation knowledge missing: error

Strings and numbers connection misconception: hellothere no output

“+3” Misunderstanding: hellothere exe

Q9. What will be the output of the following Java program fragments?

```
class PrintArray {
    public static void main(String[] args) {
        int[][] arr = {{1,2,3},{4,5,6},{7,8,9}};
        printArr1(arr);
    }
    public static void printArr1(int[][] arr) {
        for(int x=0; x<arr.length; x++) {
            for(int y=0; y<arr[x].length; y++) {
                System.out.print(arr[x][y]+" ");
            }
            System.out.println();
        }
    }
}
```

actual result:

```
1 2 3
4 5 6
7 8 9
```

C: Error (FCC)

Python: Error/Confusion (ATCC)

	Q9-correct answers	Q9-Usage of .length knowledge missing	Q9-misunders tanding of For-loop nesting	Q9-Strings connection using "+" knowledge missing	Q9-Lack of knowledge	Q9-other	SUM
Java	1	0	0	0	0	0	1
C	5	0	4	2	10	3	24
python	1	0	1	0	0	0	2
J & C	0	0	0	0	0	1	1
C & P	4	2	2	0	1	1	10
J & P	1	0	0	0	0	0	1
J&C&P	1	0	0	0	0	0	1
None	0	0	1	0	2	1	4
Other	2	0	0	0	1	0	3
SUM	15	2	8	2	14	6	47

Correct answer: 1 2 3 4 5 6 7 8 9

Usage of .length knowledge missing: idk if arr.length is automatically determined through the var name.

Misunderstanding of For-loop nesting: 0 1 1 5 2 9.

Strings connection using "+" knowledge missing: 1+2+3+4+5

lack of knowledge: I don't know.

Q10. What will be the output of the following Java program fragments?

```
public class Student_Info {
    private String num;
    private String name;
    private int age;

    public Student_Info (String num,String name,int age) {
        this.num = num;
        this.name = name;
        this.age = age;
    }
    String getNum() {
        return num;
    }
    String getName() {
        return name;
    }
    int getAge() {
        return age;
    }
    void setAge(int age) {
        this.age = age;
    }
    public static void main(String[] args) {
        Student_Info student1 = new Student_Info("001","Max",25);
        System.out.println(student1.getNum()+" "+student1.getName()+" "+
+student1.getAge());
        student1.setAge(23);
        System.out.println(student1.getAge());
    }
}
```

}

actual result: 001 Max 25 23

C: "I do not know.", "Compiling error", and so on. (ATCC)

Python: 001 Max 25 23 (TCC)

	Q10-correct answers	Q10-Knowledge of methods missing	Q10-Wrong format of output	Q10-Don't understand setAge() method	Q10-Strings and numbers connection using "+" knowledge missing	Q10-Lack of knowledge	Q10-other	SUM
Java	1	0	0	0	0	0	0	1
C	7	1	4	0	0	8	4	24
python	0	0	0	0	0	0	0	0
J & C	0	0	0	0	0	0	1	1
C & P	4	2	0	0	1	1	1	9
J & P	1	0	0	0	0	0	0	1
J&C&P	1	0	0	0	0	0	0	1
None	2	0	0	0	0	1	1	4
Other	1	0	0	1	0	1	0	3
SUM	17	3	4	1	1	11	7	44

Correct answers:

Knowledge of methods missing: Max25

Wrong format of output: 001 Max 25 001 Max 23.

Don't understand setAge() method: 001 Max 25 25.

Strings and numbers connection using "+" knowledge missing:

(student1.getNum()+","+student1.getName()+","+student1.getAge());

Error, because +student1.getAge() tries to append an int to a string without casting it.

Lack of knowledge: I don't know.