## Questionnaire for prospective teachers

### Instructions
Each task consists of a main figure (car) on a grid with marked columns and rows, a screen to display printed messages, and a program written in simple pseudocode. The program directs the car on its way to the destination. For most tasks, the program is already written. It is usually necessary to read the program and determine the correct path, the final position of the figure and the notification on the screen. For some tasks, the path has already been outlined. Then, it is necessary to choose the program(s) that offers the correct description of the path travelled.

### Misconception: Several lines of a program can be simultaneously active.
**1. task**. The program prints location on the car screen. Which notification is correct. Several answers are possible.

| Št. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | | | | | | | | | | | | | | | |
| B | | | | | | | | | | | | | | | |
| C | | | | | | | | | | | | | | | |
| D | | | | | | | | | | | | | | | |
| E | | | | | | | | | | | | | | | |
| F | | | | | | | | | | | | | | | |
| G | | | | | | | | | | | | | | | |
| H | | | | | | | | | | | | | | | |
| I | | | | | | | | | | | | | | | |
| J | | | | | | | | | | | | | | | |
| K | | | | | | | | | | | | | | | |
| L | | | | | | | | | | | | | | | |
| M | | | | | | | | | | | | | | | |
| N | | | | | | | | | | | | | | | |
| O | | | | | | | | | | | | | | | |
| P | | | | | | | | | | | | | | | |
| R | | | | | | | | | | | | | | | |
| S | | | | | | | | | | | | | | | |
| T | | | | | | | | | | | | | | | |
| U | | | | | | | | | | | | | | | |
| V | | | | | | | | | | | | | | | |

**Car screen**

Program

```
program pathTravelledPot
        sumSquares = 0
        noSquares1 = 0
        noSquares2 = 0
        sumSquares = noSquares1 + noSquares2
        noSquares1 = 3
        noSquares2 = 2
        go forward sumSquares squares
        turn right
        go forward sumSquares+2 squares
        print currentLocation
```

### Possible answers:
- ☐ U10
- ☐ O15
- ☐ R11
- ☐ S11
- ☐ The car leaves the net
- ☐ None of the above
- ☐ Other:

### Why do you think so?

### How confident are you in your answer?
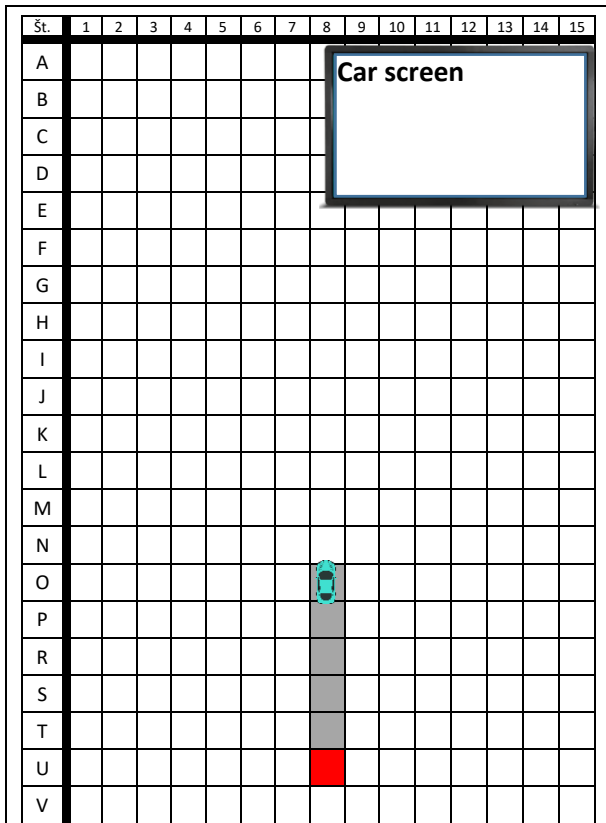
| | Not at all | Pretty wel | Very | There is no such thing |
|---|---|---|---|---|
| Location | ○ | ○ | ○ | ○ |

**Misconception: Using 'else' is optional.**

**2. task**. The car is at the end of the path. Choose the program that correctly describes the path travelled.

| Št. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|-----|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|
| A | | | | | | | | | | | | | | | |
| B | | | | | | | | | | | | | | | |
| C | | | | | | | | | | | | | | | |
| D | | | | | | | | | | | | | | | |
| E | | | | | | | | | | | | | | | |
| F | | | | | | | | | | | | | | | |
| G | | | | | | | | | | | | | | | |
| H | | | | | | | | | | | | | | | |
| I | | | | | | | | | | | | | | | |
| J | | | | | | | | | | | | | | | |
| K | | | | | | | | | | | | | | | |
| L | | | | | | | | | | | | | | | |
| M | | | | | | | | | | | | | | | |
| N | | | | | | | | | | | | | | | |
| O | | | | | | | | | | | | | | | |
| P | | | | | | | | | | | | | | | |
| R | | | | | | | | | | | | | | | |
| S | | | | | | | | | | | | | | | |
| T | | | | | | | | | | | | | | | |
| U | | | | | | | | | | | | | | | |
| V | | | | | | | | | | | | | | | |

(Car screen shown in upper right of grid. Car located at row O, column 8; red square at row U, column 8.)

**Program**

**A**
```
program pathTravelled
    repeat 5-times
        if you are in row P
            print 'P'
        else
            print 'not in row P'

        go forward 1 square
```

**B**
```
program prepotovanaPot
    repeat 5-times
        if you are in row P
            print 'P'

        print 'not in row P'
        go forward 1 square
```

**Possible answers:**

A, B, A and B, None of the possible answers.

**Program prints notifications on car screen during the execution. Which sequence of printed notifications is correct.**

- ☐ Nothing.
- ☐ not in the row P; not in the row P; not in the row P; P; not in the row P.
- ☐ not in the row P; not in the row P; not in the row P; P; not in the row P; not in the row P.
- ☐ P
- ☐ P P P P P P
- ☐ We see that nothing is printed .

**Why do you think so? Argue both answers.**

**How confident are you in your answer?**

| | Not at all | Pretty wel | Very | There is no such thing |
|---|---|---|---|---|
| Location | ○ | ○ | ○ | ○ |
| Print | ○ | ○ | ○ | ○ |

## Misconception: Both 'then' and 'else', branches are executed.

**3. task**. Which statements are true after the execution of program.

| Št. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|-----|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|
| A | | | | | | | | | | | | | | | |
| B | | | | | | | | | | | | | | | |
| C | | | | | | | | | | | | | | | |
| D | | | | | | | | | | | | | | | |
| E | | | | | | | | | | | | | | | |
| F | | | | | | | | | | | | | | | |
| G | | | | | | | | | | | | | | | |
| H | | | | | | | | | | | | | | | |
| I | | | | | | | | | | | | | | | |
| J | | | | | | | | | | | | | | | |
| K | | | | | | | | | | | | | | | |
| L | | | | | | | | | | | | | | | |
| M | | | | | | | | | | | | | | | |
| N | | | | | | | | | | | | | | | |
| O | | | | | | | | | | | | | | | |
| P | | | | | | | | | | | | | | | |
| R | | | | | | | | | | | | | | | |
| S | | | | | | | | | | | | | | | |
| T | | | | | | | | | | | | | | | |
| U | | | | | | | | | | | | | | | |
| V | | | | | | | | | | | | | | | |

**Car screen**

### Program

```
program pathTravelled
    go forward 4 squares
    if you are in row P
        turn right
        go forward 3 squares
    else
        go forward 1 square
        turn left
        go forward 5 squares
```

### Which statements are true after the execution of program.

- ☐ The car reaches P11 and stops.
- ☐ The car prints P11.
- ☐ The car reaches K12 and stops.
- ☐ The car prints J13.
- ☐ The car reaches 03 and stops.
- ☐ The car does not move.

### Why do you think so? Argue both answers.

### How confident are you in your answer?

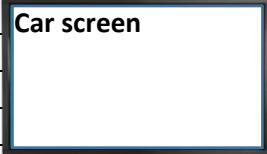| | Not at all | Pretty wel | Very | There is no such thing |
|---|:---:|:---:|:---:|:---:|
| Location | ○ | ○ | ○ | ○ |
| Print | ○ | ○ | ○ | ○ |

**Misconception 1: Value of source variable is changed to 0.**
**Misconception 2: Primitive assignment works in the opposite direction.**
**4. task**. Which statements is correct after the execution of program.

| Št. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|-----|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|
| A |  |  |  |  |  |  |  |  | Car screen | | | | | | |
| B |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| C |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| D |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| E |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| F |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| G |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| H |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| I |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| J |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| K |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| L |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| N |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| O |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| P |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| R |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| S |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| U |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| V |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Program

```
program pathTravelled
      noSquaresA = 3
      noSquaresB = 2
      noSquaresA = noSquaresB
      go forward noSquaresA squares
      turn left
      go forward noSquaresB squares
      print currentLocation
```

**Which statements is correct after the execution of program.**

- ○ S6
- ○ S8
- ○ R5
- ○ Other [                              ]

**Why do you think so? Argue both answers.**

[                                                                    ]

**How confident are you in your answer?**

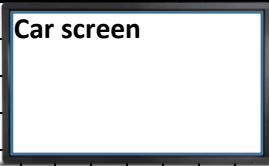| | Not at all | Pretty wel | Very | There is no such thing |
|---|---|---|---|---|
| Print | ○ | ○ | ○ | ○ |

**ZMOTNO PRERPIČANJE: The computer knows the intention of the program or of a piece of code, and acts accordingly. The system does not allow unreasonable operations.**

**5. task.** The car is at the end of the path. Choose the program that correctly describes the path travelled.

| Št. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|-----|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|
| A | | | | | | | | | Car screen | | | | | | |
| B | | | | | | | | | | | | | | | |
| C | | | | | | | | | | | | | | | |
| D | | | | | | | | | | | | | | | |
| E | | | | | | | | | | | | | | | |
| F | | | | | | | | | | | | | | | |
| G | | | | | | | | | | | | | | | |
| H | | | | | | | | | | | | | | | |
| I | | | | | | | | | | | | | | | |
| J | | | | | | | | | | | | | | | |
| K | | | | | | | | | | | | | | | |
| L | | | | | | | | | | | | | | | |
| M | | | | | | | | | | | | | | | |
| N | | | | | | | | | | | | | | | |
| O | | | | | | | | | | | | | | | |
| P | | | | | | | | | | | | | | | |
| R | | | | | | | | | | | | | | | |
| S | | | | | | | | | | | | | | | |
| T | | | | | | | | | | | | | | | |
| U | | | | | | | | | | | | | | | |
| V | | | | | | | | | | | | | | | |

Program

A
```
program pathTaravelled
    repeat 7-times
        if you are in row N
            turn left
            go forward 5 squares

        go forward 1 square
```

B
```
program pathTravelled
    repeat 7-times
        go forward 1 square

    if you are in row N
        turn left
        go forward 5 squares
```

C
```
program pathTravelled
    if you are in row N
        turn left
        go forward 5 squares

    repeat 7-times
        go forward 1 square
```

**Choose the program that correctly describes the path travelled.**

○ Program A
○ Program B
○ Program C
○ Non of the above.

**Why do you think so? Argue both answers.**

**How confident are you in your answer?**

| | Not at all | Pretty wel | Very | There is no such thing |
|---|---|---|---|---|
| Program selection | ○ | ○ | ○ | ○ |
| Path accuracy | ○ | ○ | ○ | ○ |

**Misconception: A variable can hold multiple values at a same time. Remembers old values. Rremembers sum of values.**

**6. task**. Program prints notifications on car screen during the execution. Which notifications is correct.

| Št. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|-----|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|
| A | | | | | | | | | | | | | | | |
| B | | | | | | | | | | | | | | | |
| C | | | | | | | | | | | | | | | |
| D | | | | | | | | | | | | | | | |
| E | | | | | | | | | | | | | | | |
| F | | | | | | | | | | | | | | | |
| G | | | | | | | | | | | | | | | |
| H | | | | | | | | | | | | | | | |
| I | | | | | | | | | | | | | | | |
| J | | | | | | | | | | | | | | | |
| K | | | | | | | | | | | | | | | |
| L | | | | | | | | | | | | | | | |
| M | | | | | | | | | | | | | | | |
| N | | | | | | | | | | | | | | | |
| O | | | | | | | | | | | | | | | |
| P | | | | | | | | | | | | | | | |
| R | | | | | | | | | | | | | | | |
| S | | | | | | | | | | | | | | | |
| T | | | | | | | | | | | | | | | |
| U | | | | | | | | | | | | | | | |
| V | | | | | | | | | | | | | | | |

Car screen

Program

```
program pathTravelled
        noSquares = 1
        noSquares = 2
        noSquares = 3
        go forward noSquares squares
        print currentLocation
        print noSquares
```

**Which notifications is correct.**

- ○ U8 0
- ○ N8 6
- ○ R8 3
- ○ T8 1
- ○ S8 2
- ○ Other [                    ]

**Why do you think so? Argue both answers.**

[                                                                    ]

**How confident are you in your answer?**

| | Not at all | Pretty wel | Very | There is no such thing |
|---|---|---|---|---|
| Location | ○ | ○ | ○ | ○ |
| Print | ○ | ○ | ○ | ○ |

**Misconception 1: 'While' loops terminate as soon as condition changes to false.**
**Misconception 2: Difficulties in understanding loops – exactly how many iterations gets**

**executed.**

**7. task**. Location of the car after the program execution.



Program

```
program pathTravelled
    a = 1
    repeat until a == 3
        a += 1
        go forward a squares
```

**Location of the car after the program execution.**

- ○ O8
- ○ S8
- ○ N8
- ○ R8
- ○ Other _____

**Why do you think so? Argue both answers.**

**How confident are you in your answer?**

| | Not at all | Pretty wel | Very | There is no such thing |
|---|---|---|---|---|
| Location | ○ | ○ | ○ | ○ |

**Misconception 1: Difficulties in understanding loops – exactly how many iterations gets executed.**

**Misconception 2: 'Neighborhood code' gets executed inside loop.**

**8. task**. Which statement is correct after the execution of program.

| Št. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|-----|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|
| A | | | | | | | | | | | | | | | |
| B | | | | | | | | | | | | | | | |
| C | | | | | | | | | | | | | | | |
| D | | | | | | | | | | | | | | | |
| E | | | | | | | | | | | | | | | |
| F | | | | | | | | | | | | | | | |
| G | | | | | | | | | | | | | | | |
| H | | | | | | | | | | | | | | | |
| I | | | | | | | | | | | | | | | |
| J | | | | | | | | | | | | | | | |
| K | | | | | | | | | | | | | | | |
| L | | | | | | | | | | | | | | | |
| M | | | | | | | | | | | | | | | |
| N | | | | | | | | | | | | | | | |
| O | | | | | | | | | | | | | | | |
| P | | | | | | | | | | | | | | | |
| R | | | | | | | | | | | | | | | |
| S | | | | | | | | | | | | | | | |
| T | | | | | | | | | | | | | | | |
| U | | | | | | | | | | | | | | | |
| V | | | | | | | | | | | | | | | |

Car screen

Program

```
program pathTravelled
    noRepetitions = 3
    repeat, until noRepetitions == 0
        go forward noRepetitions squares
        noRepetitions -= 1

    print noRepetitions
```

**Which statement is correct after the execution of program.**

- ○ The car reaches R8 and prints 3.
- ○ The car reaches O8 and prints 1.
- ○ The car reaches N8 and prints 0.
- ○ The car reaches N8 and prints -1.
- ○ The car reaches N8 and prints 3, 2, 1.
- ○ Other

**Why do you think so? Argue both answers.**

**How confident are you in your answer?**

| | Not at all | Pretty wel | Very | There is no such thing |
|--|------------|------------|------|------------------------|
| Location | ○ | ○ | ○ | ○ |
| Print | ○ | ○ | ○ | ○ |

**MISCONEPTION 1: Grouping of code;**

**MISCONEPTION 2: NEW - Code segments execute from state null.**

**9. task**. The car is at the end of the path. Choose the path which is outlined with the program.

| št. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|-----|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|

Rows: A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, R, S, T, U, V

**Car screen**

**Program**

```
program pathTravelled
    repeat 3-krat
        go forward 4 squares
        turn left
        go forward 2 squares
        turn right
```

A) path outlined with grey colour
B) path outlined with blue colour
C) path outlined with yellow colour

**Choose the path which is outlined with the program.**

- ○ Path outlined with grey color.
- ○ Path outlined with blue color.
- ○ Path outlined with yellow color.

**Why do you think so? Argue both answers.**

**How confident are you in your answer?**

|  | Not at all | Pretty wel | Very | There is no such thing |
|---|---|---|---|---|
| This is the only correct path | ○ | ○ | ○ | ○ |

**Evaluate the statements below.**

| | I disagree | Maybe | I agree | I do not know |
|---|---|---|---|---|
| This is a questionnaire about misconceptions | ○ | ○ | ○ | ○ |
| The questionnaire is very easy | ○ | ○ | ○ | ○ |
| I can imagine a car without outlining the path on paper. | ○ | ○ | ○ | ○ |
| I urgently need a paper to outline a path. | ○ | ○ | ○ | ○ |
| I was most likely wrong at answering. | ○ | ○ | ○ | ○ |
| In introductory programming, we all make errors in similar way. | ○ | ○ | ○ | ○ |
| It is very important to understand my own errors. | ○ | ○ | ○ | ○ |
| Other: | | | | |

**Reasons why I was potentially wrong.**

☐ This is the first time I have encountered this type of task.
☐ It was not possible to draw on paper.
☐ I have a hard time imagining abstract matters.
☐ I do not know.
☐ Other:

**I passed the written part of the exam in Introduction to Programming.**

○ Yes
○ No
○ Other:

**I passed the exam in at least one mathematical subject.**

○ Yes
○ No
○ Other:

**Exam in which math subjects have you already passed?**