Self-test Programming Fundamentals
INTRODUCTION TO THE SELF-TEST
PROGRAMMING FUNDAMENTALS

This test consists of multiple-choice questions and one open question. With some ques-
tions, the correct answer contains several alternatives (as indicated). Write down your
answer(s) and compare with the given solutions.
QUESTIONS SELF-TEST PROGRAMMING FUNDAMENTALS

1. Which of the following are object oriented languages? [3 answers]
   - [ ] [a] Java
   - [ ] [b] COBOL
   - [ ] [c] Python
   - [ ] [d] C++
   - [ ] [e] C

2. In programming, a series of logically ordered steps that lead to a required result is called
   - [O] (a) a compiler
   - [O] (b) a program
   - [O] (c) a data structure
   - [O] (d) an algorithm

3. What kind of languages are COBOL, Java, C# and Basic?
   - [O] (a) 1GL
   - [O] (b) 2GL
   - [O] (c) 3GL
   - [O] (d) 4GL

4. Which is a typical language for programming inside Web pages?
   - [O] (a) JavaScript
   - [O] (b) HTML
   - [O] (c) COBOL
   - [O] (d) XML

5. Which of the following converts source code into machine code at each runtime?
   - [O] (a) linker
   - [O] (b) compiler
   - [O] (c) interpreter
   - [O] (d) object encoder
6. Which of the following commonly happens to variables (in most languages)? [3 answers]

- [ ] [a] declaration
- [ ] [b] assignment
- [ ] [c] expansion
- [ ] [d] initialization
- [ ] [e] derivation

7. Assuming that + and * are arithmetic operators (addition and multiplication), to what does the expression $2 + 4 \times 5 + 1$ evaluate?

Answer: ..........

8. Assuming that $=$ and $/$ are the assignment and division operators, what will be the outcome of the following code in most programming languages:

```plaintext
x = 3
y = 7
z = x / (y-7)
```

- (a) a runtime error
- (b) a syntax error
- (c) a logic error
- (d) a compiler error

9. Today is Tuesday. It is raining.
Which of the following is True? [2 answers]

- [ ] [a] Raining OR Tuesday
- [ ] [b] Raining XOR Tuesday
- [ ] [c] Raining AND Tuesday
- [ ] [d] NOT (Raining OR Tuesday)

10. Which is a typical kind of variable for keeping an ordered set of values in memory, that can be referenced as e.g. A[3], A[n+1] etc.?

- (a) file
- (b) array
- (c) string
- (d) container
11. AND, OR and NOT are logical operators. What data type is expected for their operands?

(a) integer  
(b) boolean  
(c) decimal  
(d) character

12. In many programming languages, ‘otherwise’ or ‘else’ are part of which building block?

(a) a loop  
(b) a counter  
(c) a selection  
(d) a list structure

13. What building block does the following Nassi-Shneiderman diagram represent?

```
while x<10
  print x
  x = x+1
```

(a) a sequence  
(b) a selection  
(c) an iteration  
(d) a function
14. Structurally the following is a typical example of ...

![Diagram]

- (a) tracing
- (b) recursion
- (c) hatching
- (d) nesting

15. Which is a working solution for producing the following output: 1 4 9 16 25 ?

- (a) A
- (b) B
- (c) C
- (d) D
16. Assume a random population. You want to send a birthday card to all women that have a birth-
day next week. Which is a correct and probably most efficient algorithm?

- (a) A
- (b) B
- (c) C
- (d) D

17. The following is a typical pattern for reading and processing data from a sequential file. What is hidden behind the question marks? [2 possible answers, independent from each other]

- [ ] (a) while not EOF
- [ ] (b) if count = end
- [ ] (c) until EOF
- [ ] (d) count until end
18. (In most programming languages), which statement would be used in the definition of a function, to indicate the resulting value when this function is called?

O (a) result = x
O (b) reply x
O (c) send x
O (d) return x

19. ‘Tracing’, ‘stepping’ and ‘breakpoint’ are typical terms belonging to which programming development aspect?

O (a) debugging
O (b) compilation
O (c) version control
O (d) project planning

20. Which term describes the mechanism of a function calling itself?

O (a) encapsulation
O (b) inheritance
O (c) recursion
O (d) polymorphism
EVALUATION.

Here are the correct answers to all questions:
1. a c d
2. d
3. c
4. a
5. c
6. a b d
7. 23
8. a
9. a c
10. b
11. b
12. c
13. c
14. d
15. b
16. a
17. a c
18. d
19. a
20. c

Give 1 point per correctly answered question, also for questions with multiple correct answers.

If your score is more than 80%, you do not have to follow the course Programming fundamentals.

When you have a score between 50% and 80%, following the course Programming fundamentals can improve your knowledge.

When your score is less than 50%, we strongly suggest you follow the course Programming fundamentals.