INTRODUCTION TO THE SELF-TEST PROGRAMMING FUNDAMENTALS

This test consists of multiple-choice questions. With some questions, 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] C#
   - [ ] [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 * 5 + 1 evaluate?

- (a) 36
- (b) 31
- (c) 26
- (d) 23

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) runtime error
- (b) syntax error
- (c) logic error
- (d) 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.? 
   O (a) file  
   O (b) array  
   O (c) string  
   O (d) container  

11. AND, OR and NOT are logical operators. What data type is expected for their operands? 
   O (a) integer  
   O (b) boolean  
   O (c) decimal  
   O (d) character  

12. In many programming languages, 'otherwise' and 'else' are part of which building block? 
   O (a) loop  
   O (b) counter  
   O (c) selection  
   O (d) list structure  

13. What building block does the following Nassi-Shneiderman diagram represent? 
   ![Diagram]
   O (a) sequence  
   O (b) selection  
   O (c) iteration  
   O (d) function
14. Structurally the following is a typical example of ...

   T                     F
   x x x x x x ?
   |                     |
   x x x x x x ?       |     WHILE x x x x x x
   |     T              |                    |
   x x x x x x       |     F              |
   |                    |                    |
   x x x x x x       |                    |
   |                    |                    |
   UNTIL x x x x x x

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

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

A
N = 0
while N < 5
    print N * N
    N = N + 1
B
N = 0
while N < 5
    N = N + 1
    print N * N
C
N = 1
while N < 5
    N = N + 1
    print N * N
D
N = 1
until N = 5
    N = N + 1
    print N * N

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

A  

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
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<td>send card</td>
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<td>send card</td>
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</tr>
</tbody>
</table>

O (a) A
O (b) B
O (c) C
O (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]

open file

[ ] [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. d
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.