COMPUTER PROGRAMMING CONCEPTS

(390)

—OPEN EVENT—

REGIONAL 2020

***TOTAL POINTS (100 points)***

**Failure to adhere to any of the following rules will result in disqualification:**

1. **Contestant must hand in this test booklet and all printouts. Failure to do so will result in disqualification.**
2. **No equipment, supplies, or materials other than those specified for this event are allowed in the testing area. No previous BPA tests and/or sample tests or facsimile (handwritten, photocopied, or keyed) are allowed in the testing area.**
3. **Electronic devices will be monitored according to ACT standards.**

No more than sixty (60) minutes testing time

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*Workplace Skills Assessment Program* competition.

**Choose the *best* answer to the following questions. Mark answers clearly if using a scantron form. Mark A if the statement is true. Mark B is the statement is false.**

1. Which programming language can run on multiple platforms?
   1. C+
   2. Visual Basic
   3. C#
   4. Java
2. When a programmer mistypes a command, it will result in a \_\_\_\_\_\_\_\_\_\_.
   1. Run time error
   2. Logic error
   3. Critical error
   4. Syntax error
3. Which of the following languages is considered a dynamic language?
   1. Java
   2. Python
   3. C#
   4. Pascal
4. Which of the following is a computer program?
   1. Setting an alarm on a computer.
   2. Speeding up your computer.
   3. Telling the computer what to do through a special set of instructions.
   4. Convincing the computer to never freeze.
5. Which of the following is NOT a web language?
   1. Javascript
   2. C++
   3. HTML
   4. PHP
6. What is an Object-Oriented Program? A type of program \_\_\_\_\_\_\_\_\_\_
   1. using only numbers.
   2. involving data types representing data structures.
   3. not in use anymore.
   4. involving a structured method of creating programs.
7. What is the difference between a *variable* and a *constant*?
   1. No difference
   2. Variables can be declared only in software languages
   3. Constants can be declared ONLY in Java
   4. The value of a constant does not change, the value of a variable can change throughout the program
8. Division by zero will result in a \_\_\_\_\_\_\_\_\_\_ error.
   1. Syntax
   2. Logical
   3. Critical
   4. Run time
9. What is the software called that translates all the lines of code in a program into machine one line at a time?
   1. Compiler
   2. Converter
   3. Interpreter
   4. Transliterator
10. Which generation of languages allows for the use of words and commands?
    1. 2nd generation
    2. 3rd generation
    3. 1st generation
    4. 5th generation
11. If you need to execute some code based on a certain condition, which of the following would you use?
    1. Variable
    2. Conditional
    3. Compiler
    4. Loop
12. Short circuit evaluation refers to \_\_\_\_\_\_\_\_\_\_
    1. Logical
    2. Electrical
    3. Recursion
    4. Errors
13. Ask the user for a number, ask the user for another number, multiply the 2 together, print result …. What do you call this set of instructions?
    1. a class
    2. PHP
    3. an algorithm
    4. a compiler
14. Which of the following is NOT a software language?
    1. C++
    2. Visual Basic
    3. C
    4. Excel
15. Which of the following puts a string containing the word *green* into the variable *color*?
    1. *color* is *green*
    2. *‘color’* = *green*
    3. *color* = *‘green’*
    4. *green* = *‘color’*
16. Operators that have two operands are called \_\_\_\_\_\_\_\_\_\_.
    1. unary operands
    2. expressions
    3. operators
    4. binary operands
17. After the execution of the following pseudo-code, what will be the value of *num* if the input value is 4?

integer num = get a value

if (num > 0)

num = num + 10

else

if (num >= 5)

num = num + 15

* 1. 4
  2. 5
  3. 14
  4. 15

1. What provides OO programs with easy extensibility and can help simplify program control structures?
   1. Abstraction
   2. Encapsulation
   3. Inheritance
   4. Polymorphism
2. In a switch statement block, the \_\_\_\_\_\_\_\_ case executes if none of the other cases were true.
   1. else
   2. then
   3. default
   4. loop
3. What is the value of the following expression: 9 \* 2 – 8 > 5 + 2 / 2 ?
   1. true
   2. false
   3. 10
   4. 6
4. How many bytes are in 256 bits?
   1. 8
   2. 24
   3. 32
   4. 42
5. Which of the following is *true* about jagged arrays?
   1. They are single dimensional
   2. Each array can be a different size
   3. Each array must be a different size
   4. Each array is the same data type
6. &&, ||, AND, OR are examples of what type of operators?
   1. Arithmetic operators
   2. Relational operators
   3. Special operators
   4. Logical operators
7. Which of the following is *true*?
   1. 7 > 8 || 8==8
   2. 7>8 && 8==8
   3. (8<7) && (8>8)
   4. 8<7 && 8>8
8. What is the result of (“3^2”)?
   1. 9
   2. 6
   3. “9”
   4. “3^2”
9. What are sequences of characters that make up a word or sentence called?
   1. Variable
   2. String
   3. Random characters
   4. Constant
10. Which generation of languages, such as COBOL and Fortran, were used extensively for business and scientific applications?
    1. First
    2. Second
    3. Third
    4. Fourth
11. In a \_\_\_\_\_\_\_\_\_\_\_\_ program, the user sees a screen and can typically make selections using a mouse or other pointing device.
    1. Command-line
    2. Reusable
    3. Modular
    4. GUI
12. What defines the characteristics of a set of objects?
    1. Class attribute
    2. Control structure
    3. Function
    4. Method
13. A quick way to identify a method is by looking for \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
    1. A namespace
    2. Parentheses
    3. The keyword class
    4. The { } combination
14. IDE stands for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_;
    1. Independent Developers Execution
    2. Integrated Dynamic Environment
    3. Inventive Developers Environment
    4. Integrated Developers Environment
15. Logic errors are more difficult to find than syntax errors because \_\_\_\_\_\_\_\_\_\_\_\_.
    1. Logic errors are violations in the rules of the language
    2. The program may compile and produce incorrect results
    3. The program can never run if it has a logic error
    4. The program will never stop if it has a logic error
16. Which statement subtracts 100 from the original value of an answer?
    1. answer = 100-
    2. answer =- 100
    3. 100 -= answer
    4. answer -= 100
17. The number 3.45 is an example of a(n) \_\_\_\_\_\_\_ type.
    1. bool
    2. char
    3. floating point
    4. int
18. Infinite loops are examples of which type of error?
    1. Logic
    2. Run-time
    3. Syntax
    4. Critical
19. What is the unique name of a Web document that a browser needs to find and display?
    1. Website
    2. HTML
    3. URL
    4. WWW
20. Which of the following is the first step in problem solving?
    1. Designing a solution
    2. Testing the solution
    3. Implementing the solution
    4. Understanding the problem
21. What type of space can make a program easier to read and understand?
    1. Namespace
    2. White space
    3. Web space
    4. Black space
22. Desk-checking is also called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
    1. Prototyping
    2. Alpha checking
    3. Hand-tracing
    4. Beta checking
23. An overflow condition occurs when \_\_\_\_\_\_\_\_\_\_\_.
    1. A value is too large for its data type
    2. A decimal value is stored into an integer field
    3. Too many variables are defined
    4. An integer is divided by a floating-point number
24. A post-test loop will always \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ .
    1. Execute the code block at least twice
    2. Run until its counter reaches zero
    3. Execute the code block at least once
    4. Run until its counter becomes a negative value
25. Programming languages do not allow you to divide \_\_\_\_\_\_\_\_\_\_\_.
    1. Floating-point numbers
    2. By zero
    3. An integer by a floating-point number
    4. By 1
26. A \_\_\_\_\_\_\_ is a single item of information about a person, place or thing.
    1. Database
    2. Field
    3. Key
    4. Record
27. Which problem domain might contain the objects (orders, specials, supplier contacts)?
    1. Building a home
    2. Writing a paper
    3. Managing a restaurant
    4. Packing a suitcase
28. Which type of build message occurs when you declare a variable but don’t use it in your program?
    1. Syntax error message
    2. Compiler error message
    3. Warning message
    4. Logic error message
29. Suppose x is 5 and y is 7. What is the value of the following pseudo-code?

(x not equal 7) AND (x less than or equal to y)

* 1. True
  2. False
  3. This is an invalid expression in Java.
  4. Syntax error

1. Which of the following is NOT a repetition structure in most languages?
   1. for
   2. switch
   3. while
   4. recursion
2. A(n) \_\_\_\_\_ is a collection of one or more program statements combined to perform some action.
   1. Class
   2. Field
   3. Method
   4. Object
3. What is the process where the compiler temporarily changes a variable’s data type to perform a calculation?
   1. Advancement
   2. Typecast
   3. Promotion
   4. Adaption
4. When a loop control variable is NOT altered during loop execution, a(n) \_\_\_\_\_\_loop may result.
   1. Infinite
   2. Broken
   3. Enlarged
   4. Default