

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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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 if the statement is false.

1. Which programming language can run on multiple platforms?
 - a. C+
 - b. Visual Basic
 - c. C#
 - d. Java

2. When a programmer mistypes a command, it will result in a _____.
 - a. Run time error
 - b. Logic error
 - c. Critical error
 - d. Syntax error

3. Which of the following languages is considered a dynamic language?
 - a. Java
 - b. Python
 - c. C#
 - d. Pascal

4. Which of the following is a computer program?
 - a. Setting an alarm on a computer.
 - b. Speeding up your computer.
 - c. Telling the computer what to do through a special set of instructions.
 - d. Convincing the computer to never freeze.

5. Which of the following is NOT a web language?
 - a. Javascript
 - b. C++
 - c. HTML
 - d. PHP

6. What is an Object-Oriented Program? A type of program _____.
 - a. using only numbers.
 - b. involving data types representing data structures.
 - c. not in use anymore.
 - d. involving a structured method of creating programs.

7. What is the difference between a *variable* and a *constant*?
 - a. No difference
 - b. Variables can be declared only in software languages
 - c. Constants can be declared ONLY in Java
 - d. 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.
 - a. Syntax
 - b. Logical
 - c. Critical
 - d. 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?
 - a. Compiler
 - b. Converter
 - c. Interpreter
 - d. Transliterator

10. Which generation of languages allows for the use of words and commands?
 - a. 2nd generation
 - b. 3rd generation
 - c. 1st generation
 - d. 5th generation

11. If you need to execute some code based on a certain condition, which of the following would you use?
 - a. Variable
 - b. Conditional
 - c. Compiler
 - d. Loop

12. Short circuit evaluation refers to _____.
 - a. Logical
 - b. Electrical
 - c. Recursion
 - d. 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?
 - a. a class
 - b. PHP
 - c. an algorithm
 - d. a compiler

14. Which of the following is NOT a software language?
 - a. C++
 - b. Visual Basic
 - c. C
 - d. Excel

15. Which of the following puts a string containing the word *green* into the variable *color*?
- a. *color* is *green*
 - b. '*color*' = *green*
 - c. *color* = '*green*'
 - d. *green* = '*color*'

16. Operators that have two operands are called _____.
- a. unary operands
 - b. expressions
 - c. operators
 - d. 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
```

- a. 4
 - b. 5
 - c. 14
 - d. 15
18. What provides OO programs with easy extensibility and can help simplify program control structures?
- a. Abstraction
 - b. Encapsulation
 - c. Inheritance
 - d. Polymorphism
19. In a switch statement block, the _____ case executes if none of the other cases were true.
- a. else
 - b. then
 - c. default
 - d. loop

20. What is the value of the following expression: $9 * 2 - 8 > 5 + 2 / 2$?
- a. true
 - b. false
 - c. 10
 - d. 6

21. How many bytes are in 256 bits?
- 8
 - 24
 - 32
 - 42
22. Which of the following is *true* about jagged arrays?
- They are single dimensional
 - Each array can be a different size
 - Each array must be a different size
 - Each array is the same data type
23. `&&`, `||`, AND, OR are examples of what type of operators?
- Arithmetic operators
 - Relational operators
 - Special operators
 - Logical operators
24. Which of the following is *true*?
- `7 > 8 || 8 == 8`
 - `7 > 8 && 8 == 8`
 - `(8 < 7) && (8 > 8)`
 - `8 < 7 && 8 > 8`
25. What is the result of (“3^2”)?
- 9
 - 6
 - “9”
 - “3^2”
26. What are sequences of characters that make up a word or sentence called?
- Variable
 - String
 - Random characters
 - Constant
27. Which generation of languages, such as COBOL and Fortran, were used extensively for business and scientific applications?
- First
 - Second
 - Third
 - Fourth

28. In a _____ program, the user sees a screen and can typically make selections using a mouse or other pointing device.
- Command-line
 - Reusable
 - Modular
 - GUI
29. What defines the characteristics of a set of objects?
- Class attribute
 - Control structure
 - Function
 - Method
30. A quick way to identify a method is by looking for _____.
- A namespace
 - Parentheses
 - The keyword class
 - The { } combination
31. IDE stands for _____;
- Independent Developers Execution
 - Integrated Dynamic Environment
 - Inventive Developers Environment
 - Integrated Developers Environment
32. Logic errors are more difficult to find than syntax errors because _____.
- Logic errors are violations in the rules of the language
 - The program may compile and produce incorrect results
 - The program can never run if it has a logic error
 - The program will never stop if it has a logic error
33. Which statement subtracts 100 from the original value of an answer?
- answer = 100-
 - answer -= 100
 - 100 -= answer
 - answer -= 100
34. The number 3.45 is an example of a(n) _____ type.
- bool
 - char
 - floating point
 - int
35. Infinite loops are examples of which type of error?
- Logic
 - Run-time
 - Syntax
 - Critical

36. What is the unique name of a Web document that a browser needs to find and display?
- Website
 - HTML
 - URL
 - WWW
37. Which of the following is the first step in problem solving?
- Designing a solution
 - Testing the solution
 - Implementing the solution
 - Understanding the problem
38. What type of space can make a program easier to read and understand?
- Namespace
 - White space
 - Web space
 - Black space
39. Desk-checking is also called _____.
- Prototyping
 - Alpha checking
 - Hand-tracing
 - Beta checking
40. An overflow condition occurs when _____.
- A value is too large for its data type
 - A decimal value is stored into an integer field
 - Too many variables are defined
 - An integer is divided by a floating-point number
41. A post-test loop will always _____.
- Execute the code block at least twice
 - Run until its counter reaches zero
 - Execute the code block at least once
 - Run until its counter becomes a negative value
42. Programming languages do not allow you to divide _____.
- Floating-point numbers
 - By zero
 - An integer by a floating-point number
 - By 1
43. A _____ is a single item of information about a person, place or thing.
- Database
 - Field
 - Key
 - Record

44. Which problem domain might contain the objects (orders, specials, supplier contacts)?
- Building a home
 - Writing a paper
 - Managing a restaurant
 - Packing a suitcase
45. Which type of build message occurs when you declare a variable but don't use it in your program?
- Syntax error message
 - Compiler error message
 - Warning message
 - Logic error message
46. 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)
- True
 - False
 - This is an invalid expression in Java.
 - Syntax error
47. Which of the following is NOT a repetition structure in most languages?
- for
 - switch
 - while
 - recursion
48. A(n) _____ is a collection of one or more program statements combined to perform some action.
- Class
 - Field
 - Method
 - Object
49. What is the process where the compiler temporarily changes a variable's data type to perform a calculation?
- Advancement
 - Typecast
 - Promotion
 - Adaption
50. When a loop control variable is NOT altered during loop execution, a(n) _____ loop may result.
- Infinite
 - Broken
 - Enlarged
 - Default