

# COMPUTER PROGRAMMING CONCEPTS (390)

—OPEN EVENT—

**REGIONAL – 2016**

**DO NOT WRITE ON TEST BOOKLET**

*TOTAL POINTS* \_\_\_\_\_ (100)

**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 60 minutes testing time

Property of Business Professionals of America.  
May be reproduced only for use in the Business Professionals of America  
*Workplace Skills Assessment Program* competition.

**Identify the letter of the choice that best completes the statement or answers the question. Mark A if the statement is true. Mark B if the statement is false.**

1. \_\_\_\_\_ is a tool programmers use to combine object files into a single file.
  - a. Linker
  - b. Compiler
  - c. Debugger
  - d. Library
  
2. The \_\_\_\_\_ of a language is the set of rules that must be followed to use the language correctly.
  - a. flow
  - b. semantics
  - c. instructions
  - d. syntax
  
3. Given the following pseudo-code, what is the value of “m” following execution?

```
a = 5
b = 5
c = 8
If (a >= b) Then
  If (a != c)
    Then m = 1
  Else
    m = 2
  End If
Else
  If (c != 0) Then
    m = 3
  Else
    m = 4
  End If
End If
```

  - a. 1
  - b. 2
  - c. 3
  - d. 4

4. A terminating node in a flowchart is represented by which shape?
  - a. Rectangle
  - b. Parallelogram
  - c. Oval
  - d. Diamond
  
5. Which of the following is *not* an example of a loop?
  - a. While
  - b. If Else
  - c. For
  - d. Do While
  
6. Evaluate:  $4 * 15 / 6 \% 3$ 
  - a. 0
  - b. 1
  - c. 2
  - d. Undefined
  
7. Define I/O.
  - a. Interactive Operations
  - b. Independent Operations
  - c. Input and Output
  - d. Interdependent Operatons
  
8. What is a variable?
  - a. A reference to dynamic information
  - b. A randomly generated number
  - c. An unchanging constant piece of user-generated data
  - d. A slider user-interface control
  
9. How many bytes are in a 256 bits?
  - a. 8
  - b. 24
  - c. 32
  - d. 42
  
10. Who is considered to be the first computer programmer?
  - a. Alan Turing
  - b. Ada Lovelace
  - c. Bill Gates
  - d. Tim Berners-Lee

11. Which of the following Boolean expressions does *not* evaluate to true?
- $(\text{false} \ \&\& \ (2 < 5 \ \text{mod} \ 2))$
  - $(a * b * c) = (c * b * a)$
  - $(a = b) \ || \ (a != b)$
  - $(x >= 0) \ || \ (x <= 0)$
12. A variable defined outside a function is referred to as a \_\_\_\_\_?
- Block variable
  - Function variable
  - Local variable
  - Global variable
13. 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
  - All of the above
14. Which of the following is the *correct* way to use standard namespace in C++?
- Using namespace standard
  - Using namespace std
  - Using standard namespace
  - Using std namespace
15. The *for* loop is ideal to loop structures that \_\_\_\_\_.
- must execute some process at least one time
  - must check the loop condition before the loop body is executed
  - repeat some process a fixed number of times
  - do all of the above
16. How many times will the following loop be executed?
- ```
For i = 14 To 2 Step -3
    /* body of loop */
Next i
```
- 3
  - 4
  - 5
  - 14
17.  $\&\&$ ,  $\|$ , AND, OR are examples of what type of operators?
- Arithmetic operators
  - Logical operators
  - Relational operators
  - Special operators

18. In many languages, this symbol represents a negation?
- a. &
  - b. !
  - c. %
  - d. #
19. Which of the following is *not* a floating point variable?
- a. double
  - b. float
  - c. single
  - d. int
20. A division by zero error is an example of which type of programming error?
- a. syntax
  - b. runtime
  - c. logic
  - d. none of the above
21. A \_\_\_\_\_ is a context within a program in which a variable is valid.
- a. syntax
  - b. declaration
  - c. scope
  - d. binding
22. The decimal equivalent to hexadecimal 1F is?
- a. 30
  - b. 31
  - c. 32
  - d. 33
23. A void function will return
- a. nothing
  - b. a void data type
  - c. an integer data type
  - d. a string data type
24. What symbol is used to represent a decision in a flowchart?
- a. Square
  - b. Circle
  - c. Diamond
  - d. Triangle

25. What is the result of  $73/5$ ? Assume the integer division.
- 14
  - 14.6
  - 15
  - 16
26. The Unicode value of 'D' is 44. What is the Unicode value for 'X'?
- 57
  - 58
  - 59
  - 60
27. The value "abc123" is
- a language keyword
  - a Boolean literal
  - a String literal
  - None of the above
28. The maximum number an integer can hold is \_\_\_\_\_?
- $2^8 - 1$
  - $2^{16} - 1$
  - $2^{32} - 1$
  - $2^{64} - 1$
29. Which of the following is *not* a software language?
- C++
  - C
  - HTML
  - Visual Basic
30. Software that can run across multiple operating systems is called:
- cross platform applications
  - cross operating system applications
  - reusable code
  - independent code
31. The Boolean expression  $(A \parallel B) \&\& A$  is True
- only when A is True
  - only when B is True
  - when either A is True or B is True
  - for all values of A and B

32. A series of logically ordered steps that lead to a required result is called a(n) \_\_\_\_\_.
- data structure
  - algorithm
  - compiler
  - program
33. The first element in an array has an index of:
- 1
  - 0
  - 1
  - 2
34. It is cold outside. It is raining. It is not windy. Which of the following is *true*?
- raining OR NOT (cold outside)
  - NOT (windy) XOR cold outside
  - NOT (raining AND cold outside)
  - NOT (raining OR NOT(windy))
35. Which of the following is *not* something you would commonly use during the application debug phase?
- tracing
  - stepping
  - deployment
  - breakpoints
36. In a switch statement block, the \_\_\_\_\_ case executes if none of the other cases were satisfied.
- loop
  - break
  - else
  - default
37. In many programming languages, you must \_\_\_\_\_ a variable before you can use it.
- declare
  - terminate
  - name
  - utilize
38. Of the following, which is the *fastest* non-volatile storage type?
- HDD
  - RAM
  - ROM
  - SSD

39. What is the output of the following pseudocode?

```
choice = 'c'
switch (choice) {
  case 'A':
    'a': print "Good Job"
    break
  case 'B':
    'b':
    'c': print "Average"
    break
  case 'C': print "Try Again?"
    break
}
```

- a. Nothing
  - b. "Good Job"
  - c. "Average"
  - d. "Try Again?"
40. Variables are considered to be non-volatile.
- a. True
  - b. False
41. The language which is *best* known for mathematical models is?
- a. BASIC
  - b. Java
  - c. FORTRAN
  - d. COBOL
42. What operator comes first in the order of operations?
- a. multiplication
  - b. division
  - c. exponents
  - d. parentheses
43. Which of the following expressions results in the value 3?
- a.  $1 \% 4$
  - b.  $38 \% 7$
  - c.  $22 \% 3$
  - d.  $33 \% 3$

44. Which term describes the act of creating an object or class based on another object or class?
- encapsulation
  - inheritance
  - recursion
  - polymorphism
45. RSS, ATOM, and XHTML are all based on which of the following documenting syntax?
- JavaScript
  - HTML
  - COBOL
  - XML
46. Which of the following is the “not greater than or equal to” comparison operator?
- !(>)
  - !(>=)
  - !(=>)
  - !(>>)
47. In an interpreted language, compiler warnings will prevent an application from running?
- True
  - False
48. Which of the following is *not* used as a symbol to comment lines in a programming language?
- //
  - #
  - '
  - ;
49. What is the result of (“3^2”)?
- 9
  - 6
  - “3^2”
  - “9”
50. Which expression is commonly used to increment the numeric value of a variable on one unit?
- +=
  - +
  - ++
  - +=