

COMPUTER PROGRAMMING CONCEPTS (390)

—OPEN EVENT—

REGIONAL – 2018

DO NOT WRITE ON TEST BOOKLET

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.**
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No more than sixty (60) minutes testing time

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MULTIPLE CHOICE

Identify the letter of the choice that best completes the statement or answers the question.

1. Using the object-oriented approach, a(n) _____ is a combined set of attributes and actions.
 - a. algorithm
 - b. prototype
 - c. abstraction
 - d. class

2. The compiler is responsible for _____.
 - a. translating high-level programming language into machine-readable form
 - b. controlling the operation of the system
 - c. producing output from programming language such as C#
 - d. producing UML diagrams during the design phase

3. During which phase of software development should questions be asked to clarify the problem definition?
 - a. analysis
 - b. design
 - c. coding
 - d. testing

4. Packaging data characteristics and behaviors into a class is called _____.
 - a. inheritance
 - b. instantiation
 - c. encapsulation
 - d. classes

5. If you write a program and, instead of multiplying two values together as intended, you divide one value by the other, you produce a(n) _____ error.
 - a. syntax
 - b. analysis
 - c. logic
 - d. design

6. The set of rules that a language such as C# has to follow are called _____ rules.
 - a. syntax
 - b. semantic
 - c. compiler
 - d. language

7. The first step found in most software development methodologies is _____.
 - a. design
 - b. analysis
 - c. code
 - d. desk check

8. The diagram used in object-oriented development to show the characteristics and behaviors of a class is a(n) _____.
 - a. flowchart
 - b. structure chart
 - c. class diagram
 - d. UML

9. What object-oriented feature enables you to define subclasses that share some of the characteristics of other classes?
 - a. encapsulation
 - b. polymorphism
 - c. abstraction
 - d. inheritance

10. A(n)_____ version of software has not been fully tested and may still contain bugs or errors.
 - a. alpha
 - b. maintenance
 - c. bug
 - d. beta

11. On a class diagram, the minus symbol shown beside the data member indicates the member is _____.
 - a. accessible to any methods that use the class
 - b. a behavior of the data
 - c. public
 - d. private

12. When should test plans be developed?
 - a. During the analysis and design phases
 - b. After the solution has been designed
 - c. During the implementation phase
 - d. After the solution has been coded

13. One class predefined as part of .NET is _____.
 - a. System
 - b. Console
 - c. namespace
 - d. main

14. In a C# program, namespace is used to _____.
 - a. display information on the monitor
 - b. identify where the program begins
 - c. add a reference to the most common classes in .NET
 - d. group functionally related types under a single name

15. In Visual Studio.NET, the feature that attempts to sense what you are going to type before you type it is called _____.
 - a. Help
 - b. Tools
 - c. IntelliSense
 - d. ToolTip

16. Which of the following would display "Good day!" on the screen?
 - a. `WriteLine.Console("Good day!");`
 - b. `Console.WriteLine["Good day!"];`
 - c. `WriteLine.Console{"Good day!"};`
 - d. `Console.WriteLine("Good day!");`

17. Comments that use two forward slashes are called _____.
 - a. block
 - b. multiline
 - c. XML
 - d. inline

18. Program execution halts in a C# program when _____.
 - a. the last line in the program listing is executed
 - b. the last statement in `Main()` is executed
 - c. the stop statement is encountered
 - d. the Exit command from the File menu is selected

19. A(n) _____ is a collection of one or more program statements combined to perform some action.
 - a. class
 - b. object
 - c. method
 - d. field

20. A quick way to identify a method is by looking for _____.
 - a. the keyword `class`
 - b. the `{ }` combination
 - c. parentheses
 - d. a namespace

21. `Console` is a _____ and `WriteLine()` is a _____.
 - a. method, class
 - b. namespace, method
 - c. class, namespace
 - d. class, method

22. WriteLine() differs from Write() in that ____.
- WriteLine() does not automatically advance to the next line
 - smaller items are printed using Write()
 - WriteLine() was added in later releases of C#
 - WriteLine() advances to the next line after it finishes displaying output
23. Which character is called the escape character in C#?
- #
 - Esc
 - \
 - '
24. Given the following output statement, what would be displayed?
Console.Write("Ok\\ \"I'm sure\");
- "Ok\\ \"I'm sure\"
 - Ok\ "I'm sure"
 - Ok "I'm sure"
 - Ok I'm sure
25. Which method of the Console class allows multiple characters to be input via the keyboard?
- Write()
 - Read()
 - Input()
 - ReadLine()
26. An IDE enables you to ____.
- type your program statements into an editor
 - debug an application
 - compile an application
 - all of the above
27. The compiler checks for ____.
- semantic violations
 - files that are too large
 - debugger options
 - syntax rule violations
28. Run-time errors are more difficult to find than syntax errors because ____.
- the program may compile and produce results with a run-time error
 - run-time errors are violations in the rules of the language
 - the program can never run if it has a run-time error
 - the program will never stop if it has a run-time error

29. ____ is normally part of the analysis phase of software development.
- Making sure you understand the problem definition
 - Designing a prototype of the desired output
 - Coding the solution using an algorithm
 - Developing an algorithm to solve the problem
30. Which of the following statements would produce the output shown here?
- ```
Live
Life to the fullest
```
- `Console.WriteLine("Live\nLife to the \tfullest");`
  - `Console.WriteLine("Live Life to the fullest");`
  - `Console.WriteLine("Live
Life to the fullest");`
  - `Console.WriteLine("Live\\nLife to the \\tfullest");`
31. Which of the following is a *valid* identifier?
- score#1
  - amount owed by student
  - finalGrade
  - 4thExam
32. The number 3.45 is an example of a(n) \_\_\_\_ type.
- bool
  - int
  - floating point
  - char
33. The value *true* could be stored in a variable of \_\_\_\_ type.
- bool
  - decimal
  - char
  - floating point
34. The special character that can be used with an identifier is \_\_\_\_.
- - \_
  - \*
  - #
35. Which statement subtracts 100 from the original value of an answer?
- `100 -= answer;`
  - `answer = 100 -;`
  - `answer -= 100;`
  - `answer -= 100;`

36. Given the following declarations, what is stored in ans as a result of the arithmetic expression?
- ```
int ans = 0, v1 = 5, v2 = 8;
ans = v2 % v1++;
```
- 1.3333
 - 1.6
 - 2
 - 3
37. What is stored in ans as a result of the arithmetic expression, given the following declarations?
- ```
int ans = 5, v1 = 2, v2 = 10, v3 = 18;
ans += v1 + 10 * (v2-- / 5) + v3 / v2;
```
- 27
  - 12
  - 29
  - none of the above
38. Which of the following formats the first argument to display an amount with two digits to the right of the decimal?
- {0:C}
  - {0:c}
  - {0:f2}
  - all of the above
39. One convention used for naming identifiers is called Pascal case. This convention requires that \_\_\_\_.
- the first letter be lowercase with the first letter of each subsequent word capitalized
  - all letters appear in uppercase characters
  - the first letter be uppercase with the first letter of each subsequent word capitalized
  - all letters appear in lowercase with words separated by an underscore
40. Probably the *most* important rule for naming identifiers is \_\_\_\_.
- do not use over 12 characters for the identifier
  - number the identifiers and begin each identifier with an numeric character representing its number
  - use a lowercase character for the first character of the identifier
  - be descriptive and select a meaningful name
41. Which of the following would be the *most* appropriate identifier for a memory location that will store the amount of rainfall for a given period of time?
- time
  - amount of rain
  - amountOfRain
  - amountofrainforsomeperiodoftime

42. Which of the following is a valid compile-time initialization for amountDue, a floating point variable of the double type, that will initially be set to zero?
- amountDue = 0;
  - amountDue = '0';
  - amountDue = 0m;
  - amountDue = 0f;
43. Which of the following is a valid compile-time initialization for amountDue, a variable of the decimal type, that will initially be set to zero?
- amountDue = 0;
  - amountDue = '0';
  - amountDue = 0m;
  - amountDue = 0d;
44. A variable of type bool can store \_\_\_\_.
- "true"
  - TRUE
  - true
  - all of the above
45. A valid string literal representing the last month of the year is \_\_\_\_.
- 12
  - "December"
  - lastMonthOfTheYear
  - December
46. The value stored in answer after the following expression is evaluated is
- ```
int v1 = 10, v2 = 5, ans = 3;
ans += --v1 * v2++;
```
- 39
 - 48
 - 57
 - none of the above
47. Which of the following expressions would be evaluated *first*?
- ```
ans += v1 + v2 * v3 % 2;
```
- ans += v1
  - v1 + v2
  - v2 \* v3
  - v3 % 2

48. The result of the following expression is \_\_\_\_.
- ```
double ans, v1 = 45.7, v2 = 10.5;  
int v3 = 5;  
ans = (int) v1 + v2 / (double) v3;
```
- 48.8
 - 47.1
 - 48
 - 47
49. The value $3.42e-4$ is equivalent to ____.
- 3420000
 - .000342
 - 3.420000
 - .000342
50. In order to format the first argument in the WriteLine method so that it prints the value 5343.67 as \$5,343.67 with a comma and a dollar symbol, you would insert the following format string as the argument to the WriteLine() ____.
- "{0:\$,2}"
 - "{C:0}"
 - "{0:C}"
 - "{0:F,2,\$}"