

DO NOT WRITE ON TEST



**COMPUTER PROGRAMMING
CONCEPTS
~OPEN EVENT~
(390)**

REGIONAL 2024

CONCEPT KNOWLEDGE:

Multiple Choice (50 @ 2 points each)

_____ (100 points)

Test Time: 60 minutes

Multiple Choice Questions

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

1. The base-16 number system used by computer is also known as which of the following?
 - A. Octal
 - B. Hexadecimal
 - C. Decimal
 - D. Binary
2. What does the ASCII acronym stand for?
 - A. Advance Standard Code for Information Interchange
 - B. American Computer Science Code for Information Interchange
 - C. Advance Science Code for Information Interchange
 - D. American Standard Code for Information Interchange
3. Which range of ASCII values best represents nonprintable characters?
 - A. 00-31
 - B. 32-47
 - C. 48-64
 - D. 65-126
4. Which range of ASCII values best represents printable alpha characters 'A' to 'Z'?
 - A. 38-47
 - B. 40-64
 - C. 65-90
 - D. 97-122
5. What is the number of bytes in a kilobyte?
 - A. 8000
 - B. 1000
 - C. 1024
 - D. 64
6. What is the closest approximate number of megabytes in a gigabyte?
 - A. 8000
 - B. 1000
 - C. 1024
 - D. 0.001
7. Which of the following best describes how ASCII differs from Unicode?
 - A. ASCII only encodes special texts from different languages, letters, and symbols
 - B. ASCII only encodes digits, letters, and symbols
 - C. ASCII includes all of the Unicode values
 - D. ASCII cannot be used with web-based technology

8. What does RAM stand for?
 - A. Read Access Memory
 - B. Random Anywhere Memory
 - C. Read Anytime Memory
 - D. Random Access Memory
9. What does CPU stand for?
 - A. Computational Program Unicode
 - B. Central Program Unicode
 - C. Computational Processing Unit
 - D. Central Processing Unit
10. If your computer and monitor are both turned on, but nothing is appearing on the screen, which port below would be the best choice to check for a bad connection?
 - A. RJ45
 - B. USB
 - C. VGA
 - D. HDD
11. Which software category helps control the interaction between the user, the computer and other devices?
 - A. Application
 - B. Driver
 - C. Programming
 - D. System
12. This type of application software helps an end user to be able to access the internet:
 - A. Web Browsers
 - B. Internet Browsers
 - C. WiFi Accessor
 - D. WiFi Browsers
13. This type of application software allows the user to manipulate raster and vector files:
 - A. Integrated Development Environment Software
 - B. Graphics Software
 - C. Game Engine Software
 - D. Education Software
14. Which type of software provides the optional interface to help someone write software on their computer?
 - A. SDK
 - B. IDE
 - C. CPU
 - D. Text Editor

15. Which of the following is the best example of a high-level language?
- A. DSP
 - B. Assembly
 - C. Machine Code
 - D. Python
16. Which of the following is the lowest-level language?
- A. Assembly RISC
 - B. Assembly DSP
 - C. Assembly CISC
 - D. Machine Code
17. Which statement best defines a compiled language?
- A. Typical execution speed is slower
 - B. Code is translated by an interpreter
 - C. Code is executed line by line
 - D. Target machine directly translates the program
18. Which of the following is a key feature of Java?
- A. Platform independence
 - B. Machine independence
 - C. Very low-level language
 - D. Code can be adjusted while program is operating due to interpretation
19. Which of the following is a key feature of JavaScript?
- A. Unable to be hacked
 - B. Platform dependence for security
 - C. Performs Just In Time compilation
 - D. Runs on the JVM
20. What is the “.class” file type?
- A. C++ bytecode
 - B. C++ source code
 - C. Java bytecode
 - D. Java source code
21. Which of the following terms is used to represent a data variable to control how a computer algorithm deals with plaintext into an encrypted text and then decrypts it?
- A. Cybersecurity Key
 - B. Security Key
 - C. Encryption Key
 - D. Decryption Key

22. Which type of network has a topology in which all nodes are directly connected to a centralized computer that controls all traffic?
- A. Star Network
 - B. Bus Network
 - C. Tree Network
 - D. Ring Network
23. What does SDK stand for?
- A. Standardized Device Kit
 - B. Standardized Development Kit
 - C. Software Development Kit
 - D. Software Device Kit
24. What does ROM stand for?
- A. Readiness Optimized Memory
 - B. Random Only Memory
 - C. Read Only Memory
 - D. Random Optimized Memory
25. What is the function of an Interpreter?
- A. Produces compiled code that is easily read by humans
 - B. Produces a program into assembly language
 - C. Converts machine code into human language for read speed
 - D. Executes instructions of program without compiling the code
26. In an OOP based language what is the collection of coding templates that can used and changed by programmer when developing an application?
- A. Class Inheritance
 - B. Class Template
 - C. Class Packet
 - D. Class Library
27. In an OOP based language what is the strategy of modeling that involves the removal of temporal features to focus on greater details?
- A. Inheritance
 - B. Generalization
 - C. Encapsulation
 - D. Abstraction
28. What is needed to declare a class in JavaScript?
- A. Class heading, set of curly braces { } for data members
 - B. Class heading and set of curly braces { } for data members terminated with a semicolon
 - C. Class heading, set of curly braces { } for data members, and a constructor
 - D. Class heading, set of curly braces { } for data members, and data attributes

29. In a Binary Tree data structure, if the tree is empty then what is the status of the root?
- A. Void
 - B. Undefined
 - C. Undeclared
 - D. Null
30. Which type of data structure is best defined as an array of alphanumeric characters?
- A. Binary Trees
 - B. Stacks
 - C. Array
 - D. String
31. Which type of data structure is best defined as linear data structure where elements are added to it at one end, and removed from another end (FIFO)?
- A. Linked List
 - B. Stack
 - C. Array
 - D. Queue
32. Which type of data structure is best defined as being based upon a binary tree data structure and is considered complete?
- A. Binary
 - B. Stack
 - C. Heap
 - D. Queue
33. What is one of the advantages of using procedural programming?
- A. Uses data abstraction
 - B. Program flow can be tracked easily
 - C. Follows a bottom up approach
 - D. Excellent data security
34. Which of the following would be considered a hierarchical data structure?
- A. Binary Search Tree
 - B. Binary Heap
 - C. Binary Tree
 - D. All of the above
35. Which of the following Binary Tree traversals?
- A. Preorder Traversal
 - B. Inorder Traversal
 - C. Postorder Traversal
 - D. All of the above

36. Which of the following is the best reason for a programmer to use a hashing data structure?
- A. When the program needs to perform searching, insertion and deletions much faster than a binary tree
 - B. When the program is working data elements that are transferred asynchronously
 - C. When the program needs to search through elements or objects that are organized in a hierarchy
 - D. When the program needs to search through homogenous elements stored in contiguous locations
37. Which type of algorithm strategy uses a key that is assigned to specific data?
- A. Hashing
 - B. Divide and Conquer
 - C. Dynamic Programming
 - D. Sorting
38. Which type of algorithm strategy looks for particular data-elements or groups of the data-elements?
- A. Seeking
 - B. Identification
 - C. Searching
 - D. Sorting
39. Which of the following terms best describes a top down approach?
- A. Structure Design
 - B. Object Oriented Programming
 - C. Bubble Sorting
 - D. Binary Search Tree
40. What type of loop can be thought of as a repeating “If” statement as the code is repeated based upon a Boolean condition?
- A. While
 - B. For
 - C. Foreach
 - D. Do While
41. Convert the base-10 number “21” to a base-16 (hex)
- A. 12
 - B. 13
 - C. 14
 - D. 15

42. What is printed from the code below:

```
System.out.println(32+32);
```

- A. 3232
- B. 64
- C. 7
- D. 1, 3, 5,

43. What is printed from the code below:

```
System.out.print(4.5 * 4 * ((double)2 - 0.5) / ((double)(int)1.5));
```

- A. 27
- B. 27.0
- C. 27.5
- D. None of these

44. What is printed from the code below:

```
public static void main(String[] args)
{
    int[] oddIndexArray = new int[] {1, 2, 3, 4, 5};
    printOddIndices(oddIndexArray);
}

public static void printOddIndices(int[] arr)
{
    for (int i = 1; i < arr.length; i+=2)
    {
        System.out.print(arr[i]+" ");
    }
}
```

- A. 2 4
- B. 2, 4,
- C. 1 3 5
- D. 1, 3, 5,

45. What is returned from the code below with the following method call bpaRecursion(2, 4):

```
public static int bpaRecursion(int first, int second)
{
    if(first < second)
        return 1 + bpaRecursion(second, first+2);
    return first;
}
```

- A. 3
- B. 4
- C. 5
- D. None of these choices

46. What is printed from the code below:

```
String one = "This is a string";
String two = new String("This is a string");
if(one == two)
    System.out.println("It's a match");
else
    System.out.println(one == two);
```

- A. This is a string
- B. It's a match
- C. True
- D. False

47. What is printed from the code below:

```
String x = "BPA is the best!";
x+= "What happened?";
double a = Math.ceil(8.5);
a= Math.floor(a);
System.out.println(a);
int y = x.length()-((int)a);
char z = x.charAt(y);
System.out.println(z);
```

- A. t
- B. h
- C. a
- D. p

48. Which of the following is NOT part of the software development cycle?
- A. Designing
 - B. Marketing
 - C. Programming
 - D. Testing
49. Which term below best fits the following definition an OOP paradigm?
- A. Statements are structures into subroutines and functions; they are step by step instructions for the computer
 - B. The foundation is built into mathematical statements that express facts and rules within a system
 - C. Creates classes of objects that have states and behaviors
 - D. None of these
50. In the software life cycle, what is the state that involves all of the prerequisite steps before formal testing?
- A. Pre-Alpha
 - B. Alpha
 - C. Beta
 - D. Pre-Beta