

## COS201: Computer Programming I - Comprehensive Question Bank

### Section 1: Introduction to Programming & C Basics

1. Who is credited with designing and writing the C programming language?
  - (a) Bjarne Stroustrup
  - (b) Dennis Ritchie
  - (c) James Gosling
  - (d) Ken Thompson
2. In what year was the C language developed?
  - (a) 1969
  - (b) 1970
  - (c) 1972
  - (d) 1985
3. The approach of breaking a large problem into smaller, manageable pieces is known as:
  - (a) Bottom-up programming
  - (b) Object-oriented programming
  - (c) Top-down programming
  - (d) Sequential programming
4. A series of instructions that enables a computer to perform a designated task is called a:
  - (a) Algorithm
  - (b) Program
  - (c) Compiler
  - (d) Hardware
5. Which of these is a strength of the C language?
  - (a) Automatic error checking
  - (b) Built-in classes and packages
  - (c) Efficiency and Portability
  - (d) High-level abstraction that hides memory addresses
6. The method used to solve a specific problem is referred to as the:
  - (a) Program
  - (b) Syntax
  - (c) Algorithm
  - (d) Compiler
7. C is often described as a "permissive" language because:
  - (a) It is easy for beginners to learn
  - (b) It assumes the programmer knows what they are doing
  - (c) It allows the use of any variable name
  - (d) It does not require a compiler
8. Which component of a computer executes programs stored in RAM?
  - (a) SSD
  - (b) BUS
  - (c) CPU
  - (d) Keyboard
9. Early languages like BASIC and FORTRAN often produced "spaghetti code" because they relied

on:

- (a) Functions
- (b) GOTO statements
- (c) While loops
- (d) Pointers

10. Which of the following is NOT a common use for C?

- (a) Operating Systems
- (b) Language Compilers
- (c) Database management
- (d) High-level web page styling only

## Section 2: C Program Structure & Compilation

1. Which preprocessor command is used to include the standard input-output header file?

- (a) `#include <stdlib.h>`
- (b) `#include <stdio.h>`
- (c) `#import <stdio.h>`
- (d) `#define stdio.h`

2. The execution of every C program begins at the:

- (a) `printf()` function
- (b) `#include` directive
- (c) `main()` function
- (d) First comment line

3. Every statement in C must be terminated with a:

- (a) Period (.)
- (b) Colon (:)
- (c) Semicolon (;)
- (d) Comma (,)

4. What does the `\n` character represent in a string?

- (a) Tab
- (b) Null character
- (c) Newline
- (d) Backspace

5. Which tool converts C source code into machine language (binary)?

- (a) Linker
- (b) Preprocessor
- (c) Compiler
- (d) Editor

6. What is the standard file extension for C source files?

- (a) `.exe`
- (b) `.obj`
- (c) `.c`
- (d) `.txt`

7. A programmer's comment in C that spans multiple lines starts with `/*` and ends with:

- (a) `*/`
- (b) `//`

- (c) \*/
  - (d) \*\*
8. The step where library functions are combined with object code to create an executable is called:
- (a) Preprocessing
  - (b) Compiling
  - (c) Linking
  - (d) Debugging
9. An IDE stands for:
- (a) Integrated Development Environment
  - (b) Internal Data Engine
  - (c) Integrated Design Element
  - (d) Intelligent Debugging Editor
10. Which of the following is a free, open-source C IDE mentioned in the text?
- (a) Microsoft Word
  - (b) Code::Blocks
  - (c) Photoshop
  - (d) Excel

### Section 3: Variables, Data Types & Operators

1. Which data type is used to store values with decimal places?
- (a) int
  - (b) float
  - (c) \_Bool
  - (d) void
2. What is the purpose of the \_Bool data type?
- (a) To store large integers
  - (b) To store characters
  - (c) To indicate a Boolean condition (0 or 1)
  - (d) To store memory addresses
3. The double data type is similar to float but provides:
- (a) Less precision
  - (b) Roughly twice the precision
  - (c) Only integer values
  - (d) Only positive numbers
4. In C, which operator is used for finding the remainder of a division?
- (a) /
  - (b) \*
  - (c) %
  - (d) ^
5. Which of the following is an assignment operator?
- (a) ==
  - (b) !=
  - (c) +=
  - (d) <
6. What does the expression count += 10 do?

- (a) Checks if count equals 10
  - (b) Adds 10 to the current value of count
  - (c) Subtracts 10 from count
  - (d) Multiplies count by 10
7. C is a case-sensitive language. This means:
- (a) Uppercase and lowercase letters are treated as the same
  - (b) Uppercase and lowercase letters are distinct
  - (c) All commands must be in uppercase
  - (d) Variable names cannot have numbers
8. What is the value of  $10 + 2 * 5$  in C?
- (a) 60
  - (b) 20
  - (c) 17
  - (d) 25
9. Which header file must be included to use true and false with Boolean variables?
- (a) <stdio.h>
  - (b) <stdbool.h>
  - (c) <math.h>
  - (d) <stdlib.h>
10. To display an integer value using printf, which format specifier is used?
- (a) %f
  - (b) %c
  - (c) %i or %d
  - (d) %s

#### Section 4: Control Flow (Loops & Decisions)

1. Which statement is used to make a decision in C?
- (a) for
  - (b) while
  - (c) if
  - (d) do
2. A loop that repeats forever is called a(n):
- (a) Finite loop
  - (b) Infinite loop
  - (c) Nested loop
  - (d) Logic error
3. The for loop contains three expressions in its header. What is the first one?
- (a) Loop condition
  - (b) Loop expression
  - (c) Init\_expression
  - (d) Terminate\_expression
4. Which loop type always executes its body at least once?
- (a) for
  - (b) while
  - (c) do-while

- (d) if-else
5. The switch statement is often used as an alternative to:
- (a) Single if statements
  - (b) Multiple if-else or if-else if chains
  - (c) Infinite loops
  - (d) Variable declarations
6. In a switch statement, what happens if a break is omitted after a case?
- (a) The program crashes
  - (b) The compiler generates an error
  - (c) Execution "falls through" to the next case
  - (d) The loop terminates immediately
7. What is the purpose of the default case in a switch statement?
- (a) It is executed if no other case matches
  - (b) It is the first case to be checked
  - (c) it terminates the switch statement
  - (d) It marks the end of the program
8. Which operator is used to check for equality?
- (a) =
  - (b) ==
  - (c) !=
  - (d) <>
9. To exit a loop prematurely, which keyword is used?
- (a) continue
  - (b) exit
  - (c) break
  - (d) return
10. Which loop is better when you know exactly how many times you want to repeat a task?
- (a) while
  - (b) do-while
  - (c) for
  - (d) if

## Section 5: Arrays & Functions

1. An array is a collection of elements of the:
- (a) Different types
  - (b) Same type
  - (c) Only integer types
  - (d) Only character types
2. Elements of an array are stored in:
- (a) Random memory locations
  - (b) Contiguous memory locations
  - (c) Different files
  - (d) The CPU registers
3. If an array is declared as `int num[5]`, what is the index of the first element?
- (a) 1

- (b) -1
  - (c) 0
  - (d) 5
4. What is a "string" in C?
- (a) A special primitive data type
  - (b) An array of characters
  - (c) A mathematical expression
  - (d) A type of loop
5. A two-dimensional array can be thought of as a:
- (a) Linear list
  - (b) Matrix (rows and columns)
  - (c) Single variable
  - (d) Pointer to a single value
6. What keyword is used to return a value from a function?
- (a) give
  - (b) send
  - (c) return
  - (d) back
7. A function that does not return any value should have a return type of:
- (a) int
  - (b) float
  - (c) void
  - (d) null
8. Which of the following is used to read input from the keyboard?
- (a) printf()
  - (b) scanf()
  - (c) main()
  - (d) include
9. In scanf("%d", &n), the & symbol is the:
- (a) Addition operator
  - (b) Address-of operator
  - (c) Logical AND operator
  - (d) Pointer dereference
10. What is a "function prototype"?
- (a) The body of the function
  - (b) A declaration of the function's name, return type, and parameters
  - (c) The call to the function
  - (d) A library file

#### Section 6: Advanced Concepts & Miscellaneous

1. Which function is used to dynamically allocate memory on the heap?
- (a) free()
  - (b) malloc()
  - (c) scanf()
  - (d) printf()

2. When you are done with heap memory, you should release it using:

- (a) delete()
- (b) remove()
- (c) free()
- (d) return

3. The "terse" nature of C means it was designed to be:

- (a) Very wordy and descriptive
- (b) Brief and concise to minimize typing time
- (c) Easy for non-programmers to read
- (d) Extremely slow to execute

4. What is one major weakness of C mentioned in the text?

- (a) It is too slow
- (b) It is not portable
- (c) It can be error-prone and hard to understand
- (d) It cannot be used for system programming

5. The logical "NOT" operator in C is represented by:

- (a) &&
- (b) ||
- (c) !
- (d) ~

6. A variable declared inside a function is typically:

- (a) Global
- (b) Local to that function
- (c) Accessible by all programs
- (d) Constant

7. Which operating system's kernel is famously scripted using C?

- (a) Windows 95
- (b) Linux
- (c) MS-DOS
- (d) CP/M

8. Software engineering is concerned with constructing:

- (a) Games only
- (b) Robust and reliable computer programs
- (c) Hardware components
- (d) Internet cables

9. Which of the following is NOT a basic data type in C?

- (a) int
- (b) char
- (c) string
- (d) float

10. "Open source" software refers to software where:

- (a) The code is hidden from users
- (b) Users can alter or improve the source code
- (c) The software costs a lot of money

- (d) Only the original creator can see the code

#### Answer Key

1. (b) | 2. (c) | 3. (c) | 4. (b) | 5. (c) | 6. (c) | 7. (b) | 8. (c) | 9. (b) | 10. (d)  
11. (b) | 12. (c) | 13. (c) | 14. (c) | 15. (c) | 16. (c) | 17. (a) | 18. (c) | 19. (a) | 20. (b)  
21. (b) | 22. (c) | 23. (b) | 24. (c) | 25. (c) | 26. (b) | 27. (b) | 28. (b) | 29. (b) | 30. (c)  
31. (c) | 32. (b) | 33. (c) | 34. (c) | 35. (b) | 36. (c) | 37. (a) | 38. (b) | 39. (c) | 40. (c)  
41. (b) | 42. (b) | 43. (c) | 44. (b) | 45. (b) | 46. (c) | 47. (c) | 48. (b) | 49. (b) | 50. (b)  
51. (b) | 52. (c) | 53. (b) | 54. (c) | 55. (c) | 56. (b) | 57. (b) | 58. (b) | 59. (c) | 60. (b)