

COMPUTER SCIENCE

PROGRAMMING WITH C++

Introduction to C

1. What is the first step in problem-solving using a computer?
A) Writing the program
B) Developing an algorithm
C) Understanding the problem
D) Drawing a flowchart
2. Which of the following is NOT a feature of an algorithm?
A) Finiteness
B) Ambiguity
C) Definiteness
D) Effectiveness
3. What does a flowchart represent?
A) A compiled program
B) A graphical representation of an algorithm
C) A debugging tool
D) A high-level language
4. Which symbol is used in a flowchart to represent a decision-making step?
A) Rectangle
B) Parallelogram
C) Diamond
D) Oval
5. Top-down design in problem-solving focuses on:
A) Starting with specific details
B) Breaking the problem into smaller subproblems
C) Writing code first
D) Debugging syntax errors
6. What is the primary purpose of a compiler?
A) To execute the program
B) To translate high-level code to machine code
C) To debug logical errors
D) To link library functions
7. Which of the following is a low-level language?
A) C
B) Python
C) Assembly language
D) Java
8. C is called a "middle-level language" because:
A) It combines high-level features with low-level functionality
B) It is slower than assembly language
C) It is only used for system programming
D) It cannot manipulate hardware directly
9. What is the correct sequence of program execution?
A) Compile → Link → Write → Execute
B) Write → Compile → Link → Execute
C) Link → Debug → Compile → Execute
D) Execute → Compile → Link → Debug
10. Which function must every C program contain?
A) printf()
B) main()
C) scanf()
D) return()
11. What is the extension of a C source file?
A) .exe
B) .obj
C) .c
D) .h
12. Which header file is required for printf() and scanf()?
A) <conio.h>
B) <math.h>
C) <stdio.h>
D) <stdlib.h>
13. What type of error is detected during compilation?
A) Logical error
B) Runtime error
C) Syntax error
D) Linker error
14. A "Divide by zero" error is an example of:
A) Syntax error
B) Logical error
C) Runtime error
D) Linker error
15. What is the purpose of the linker?
A) To translate source code
B) To combine object code with library functions
C) To debug logical errors
D) To optimize execution speed
16. Which of the following is a structured programming language?
A) Assembly
B) C
C) Machine language
D) HTML
17. What is the output of the following code?

```
#include <stdio.h>
main() {
    printf("Hello\nTRB");
}
```


A) Hello TRB
B) Hello\nTRB
C) Hello (newline) TRB
D) Compilation error
18. Which phase checks for correct grammar in a C program?
A) Linking
B) Execution
C) Compilation
D) Debugging
19. What is the term for removing errors from a program?
A) Compiling
B) Linking
C) Debugging
D) Executing

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|---------|---------|---------|---------|---------|---------|---------|---------|--------|---------|---------|
| 1. (C) | 2. (B) | 3. (B) | 4. (C) | 5. (B) | 6. (B) | 7. (C) | 8. (A) | 9. (B) | 10. (B) | 11. (C) |
| 12. (C) | 13. (C) | 14. (C) | 15. (B) | 16. (B) | 17. (C) | 18. (C) | 19. (C) | | | |

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| <p>20. Which of the following is NOT a step in problem-solving?
 A) Problem anticipation
 B) Careful planning
 C) Random coding
 D) Logical precision</p> <p>21. What does the \n in printf() represent?
 A) Tab space B) Newline
 C) Backslash D) No effect</p> <p>22. Which symbol marks the start/end of a block in C?
 A) [] B) ()
 C) {} D) <></p> <p>23. Who developed the C language?
 A) Ken Thompson B) Dennis Ritchie
 C) Bjarne Stroustrup D) Alan Turing</p> <p>24. What is the output of 5 / 2 in C if variables are integers?
 A) 2.5 B) 2
 C) 3 D) 2.0</p> <p>25. Which of the following is a logical error?
 A) Missing semicolon
 B) Infinite loop
 C) Wrong formula usage
 D) Misspelled keyword</p> <p>26. Which of the following is NOT a criterion for an algorithm?
 A) Input B) Output
 C) Efficiency D) Infinite execution</p> <p>27. In top-down design, the main problem is divided into:
 A) Modules and sub-modules
 B) Only procedures
 C) Only functions
 D) Data blocks</p> <p>28. The basic unit of a C program is:
 A) Variable B) Function
 C) Class D) Module</p> <p>29. Which error is the most difficult to detect and correct?
 A) Syntax error B) Semantic error
 C) Logical error D) Linker error</p> <p>30. The header file <stdio.h> is included in a C program to:
 A) Use string functions only
 B) Provide standard input and output functions
 C) Define mathematical functions only
 D) Access hardware directly</p> <p>31. The main() function in C:
 A) Can be absent in a C program
 B) May appear multiple times
 C) Must be present once
 D) Must not contain any statements</p> | <p>32. Which step is NOT included in problem-solving using a computer?
 A) Develop algorithm and flowchart
 B) Write program
 C) Enter data using editor
 D) Directly compile object code</p> <p>33. A program written in a high-level language needs to be translated because:
 A) The compiler cannot handle high-level syntax
 B) Computers understand only machine language
 C) It has no syntax rules
 D) It is already executable</p> <p>34. In C, syntax errors are detected at:
 A) Runtime B) Compile-time
 C) Link-time D) After execution</p> <p>35. Which of the following statements is TRUE about low-level languages?
 A) Machine-independent
 B) Easier to debug than high-level languages
 C) Closer to hardware
 D) Used mainly for business applications</p> <p>36. The standard extension for an executable file in DOS is:
 A) .exe B) .obj
 C) .c D) .out</p> <p>37. An algorithm is said to have finiteness if:
 A) It can run indefinitely
 B) It stops after a finite number of steps
 C) It can handle infinite data
 D) It has infinite loops</p> <p>38. The scanf() function is used to:
 A) Output data to screen
 B) Read input from the user
 C) Compile a program
 D) Debug a program</p> <p>39. The feature of C language that allows bits and addresses manipulation is:
 A) Modularity B) Portability
 C) Low-level access D) Strong typing</p> <p>40. What is the first step in problem-solving?
 A) Write code immediately
 B) Define the problem precisely
 C) Compile the program
 D) Run test data</p> <p>41. Which of the following is NOT a type of error discussed in the unit?
 A) Syntax error B) Logical error
 C) Linker error D) Structural error</p> <p>42. A linker error occurs when:
 A) Syntax is incorrect
 B) Program runs successfully
 C) Definitions are missing during linking
 D) Variable is not initialized</p> |
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|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 20. (C) | 21. (B) | 22. (C) | 23. (B) | 24. (B) | 25. (C) | 26. (D) | 27. (A) | 28. (B) | 29. (C) | 30. (B) |
| 31. (C) | 32. (D) | 33. (B) | 34. (B) | 35. (C) | 36. (A) | 37. (B) | 38. (B) | 39. (C) | 40. (B) | 41. (D) |
| 42. (C) | | | | | | | | | | |

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| <p>43. The inclusion of <code>#include <stdio.h></code> is an example of:
 A) Syntax statement
 B) Semantic directive
 C) Preprocessor directive
 D) Loop construct</p> <p>44. A high-level language is generally:
 A) Machine-dependent
 B) Difficult to learn
 C) Machine-independent
 D) Written using assembly mnemonics</p> <p>45. During compilation, if a variable is declared but not used, it results in:
 A) Syntax error
 B) Warning (semantic error)
 C) Linker error
 D) Runtime error</p> <p>46. A structured programming language is characterized by:
 A) Only using goto statements
 B) Modular and top-down design
 C) No control structures
 D) No data types</p> <p>47. In C, an integer division result is:
 A) Always a floating-point number
 B) Rounded up automatically
 C) Only the integer quotient part
 D) Always an error</p> <p>48. Which of the following correctly indicates a runtime error example?
 A) Missing semicolon
 B) Using undeclared variable
 C) Division by zero during execution
 D) Wrong function name in printf</p> <p>49. Which of the following is NOT a valid identifier in C?
 A) <code>_student</code> B) <code>total_marks</code>
 C) <code>123var</code> D) <code>tax_rate</code></p> <p>50. What is the range of a signed char in C?
 A) 0 to 255 B) -128 to 127
 C) -32768 to 32767 D) 0 to 65535</p> <p>51. Which data type qualifier is used to store only non-negative integers?
 A) short B) signed
 C) unsigned D) long</p> <p>52. What is the output of <code>printf("%d", 5 / 2);</code>?
 A) 2.5 B) 2
 C) 3 D) Compilation error</p> <p>53. Which operator is used for modular division in C?
 A) / B) %
 C) // D) mod</p> <p>54. What is the value of x after <code>x = (5 > 3) ? 1 : 0;</code>?
 A) 0 B) 1
 C) 5 D) 3</p> | <p>55. Which of the following is a valid floating-point constant?
 A) 1.2e3 B) 1,234.5
 C) 0x1.2 D) 123E</p> <p>56. What is the purpose of the size of operator?
 A) Returns the size of a variable in bits
 B) Returns the size of a variable in bytes
 C) Converts data types
 D) Allocates memory dynamically</p> <p>57. Which escape sequence represents a newline character?
 A) <code>\t</code> B) <code>\n</code>
 C) <code>\b</code> D) <code>\r</code></p> <p>58. What is the output of <code>printf("%d", !(5 > 3));</code>?
 A) 0 B) 1
 C) 5 D) Compilation error</p> <p>59. Which operator has the highest precedence in C?
 A) + B) *
 C) () D) =</p> <p>60. What is the result of <code>10 % 3</code>?
 A) 1 B) 3
 C) 0.333 D) Compilation error</p> <p>61. Which of the following is a valid symbolic constant definition?
 A) <code>#define PI 3.14</code> B) <code>const PI = 3.14;</code>
 C) <code>int PI = 3.14;</code> D) <code>PI := 3.14</code></p> <p>62. What is the value of a after <code>a = 5; a += 3;</code>?
 A) 5 B) 3
 C) 8 D) 15</p> <p>63. Which operator is used for logical AND in C?
 A) <code>&</code> B) <code>&&</code>
 C) <code> </code> D) <code>!</code></p> <p>64. What is the output of <code>printf("%f", (float)5 / 2);</code>?
 A) 2 B) 2.0
 C) 2.5 D) 2.500000</p> <p>65. Which of the following is NOT a keyword in C?
 A) printf B) int
 C) switch D) return</p> <p>66. What is the output of <code>printf("%d", 0x10);</code>?
 A) 10 B) 16
 C) 0x10 D) Compilation error</p> <p>67. Which operator is used to concatenate two expressions in C?
 A) + B) ,
 C) <code>&</code> D) <code> </code></p> <p>68. What is the result of <code>5 > 3 && 2 < 4</code>?
 A) 0 B) 1
 C) True D) False</p> <p>69. Which data type is used to store a single character in C?
 A) int B) char
 C) string D) float</p> |
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|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 43. (C) | 44. (C) | 45. (B) | 46. (B) | 47. (C) | 48. (C) | 49. (C) | 50. (B) | 51. (C) | 52. (B) | 53. (B) |
| 54. (B) | 55. (A) | 56. (B) | 57. (B) | 58. (A) | 59. (C) | 60. (A) | 61. (A) | 62. (C) | 63. (B) | 64. (D) |
| 65. (A) | 66. (B) | 67. (B) | 68. (B) | 69. (B) | | | | | | |

70. What is the output of `printf("%d", sizeof(double));`?
- A) 2 B) 4
C) 8 D) 16
71. Which operator is used for bitwise AND in C?
- A) `&&` B) `&`
C) `||` D) `!`
72. What is the value of `a` after `a = 10; a++`?
- A) 10 B) 11
C) 9 D) 12
73. Which of the following is a valid octal constant?
- A) `0x12` B) `0123`
C) `0b101` D) `123`
74. Which of the following is NOT a valid identifier in C?
- A) `temp` B) `_value`
C) `1rate` D) `tax_rate`
75. Which data type in C provides the highest precision for floating-point numbers?
- A) `float` B) `double`
C) `long double` D) `signed int`
76. What is the range of an unsigned char data type in C?
- A) -128 to 127 B) 0 to 127
C) 0 to 255 D) -255 to 255
77. Which of the following is a valid octal constant?
- A) `078` B) `0x77`
C) `0777` D) `79`
78. How many bytes does a long int typically occupy in C (according to the document)?
- A) 1 B) 2
C) 4 D) 8
79. What is the main purpose of using symbolic constants defined with `#define`?
- A) Save memory during execution
B) Improve readability and maintainability
C) Increase runtime speed
D) Reduce compile-time errors only
80. Which statement about enumerated types is FALSE?
- A) Compiler assigns integer values starting from 0 by default
B) Explicit values can be assigned to constants
C) Enumeration constants can be floating-point numbers
D) Enumerations improve code readability
81. What is the ASCII value of the character 'A'?
- A) 65 B) 66
C) 97 D) 48
82. Which of these represents a valid floating-point constant?
- A) `23.45e6` B) `1.2.3`
C) `0x23.5` D) `34e`
83. What is the result of the expression `5/2` in C when both operands are integers?
- A) 2.5 B) 2
C) 3 D) Compilation error
84. The operator `%` in C can be used only with:
- A) float operands B) integer operands
C) char operands only D) pointer operands
85. Which operator has the highest precedence among the following?
- A) `+` B) `*`
C) `==` D) `&&`
86. What will be the value of `a` after executing `a = ++b + c--`, if `b = 2` and `c = 3` initially?
- A) 5 B) 6
C) 4 D) 7
87. Which of the following operators is a ternary operator in C?
- A) `&&` B) `?:`
C) `,` (comma) D) `++`
88. What is the main difference between `&&` and `&` operators in C?
- A) No difference; they are interchangeable
B) `&&` is logical AND, `&` is bitwise AND
C) `&&` is bitwise AND, `&` is logical AND
D) `&&` works on floats only
89. What is the purpose of the `sizeof` operator?
- A) Returns value of a variable
B) Returns size of an object or type in bytes
C) Returns address of a variable
D) Returns type name as a string
90. Which shorthand operator corresponds to `a = a * b;`?
- A) `a**b` B) `a*=b`
C) `a:=b` D) `a==b`
91. What is the result of the expression `(a < --b) && (a == c)` if initially `a = 3`, `b = 4`, `c = 2`?
- A) true B) false
C) runtime error D) undefined
92. Which operator is used to explicitly convert the type of an expression in C?
- A) `sizeof` B) `&`
C) `cast (type)` D) `typeof`
93. What is the associativity of the assignment operators (e.g., `=`, `+=`)?
- A) Left to right
B) Right to left
C) None
D) Depends on operand type
94. What will be the value of `x` in this code?
- ```
int a = 10, b = 15, x;
x = (a < b) ? ++a : ++b;
```
- A) 10                                      B) 11  
C) 16                                      D) 12

|         |         |         |         |         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 70. (C) | 71. (B) | 72. (B) | 73. (B) | 74. (C) | 75. (C) | 76. (C) | 77. (C) | 78. (C) | 79. (B) | 80. (C) |
| 81. (A) | 82. (A) | 83. (B) | 84. (B) | 85. (B) | 86. (B) | 87. (B) | 88. (B) | 89. (B) | 90. (B) | 91. (B) |
| 92. (C) | 93. (B) | 94. (B) |         |         |         |         |         |         |         |         |

95. The comma operator evaluates:  
 A) Right to left      B) Left to right  
 C) Only right side    D) None
96. What is the output of `printf("%d", (int) 3.7);`?  
 A) 3.7      B) 4  
 C) 3      D) Compilation error
97. Which keyword is used to create a new name for an existing data type?  
 A) typedef      B) define  
 C) enum      D) register
98. Which is true about the increment operator `++` in C?  
 A) Always increments after value is used  
 B) Can only be used with integers  
 C) Can be used in pre or post form  
 D) Only works in loops
99. Which of the following is an entry-controlled loop in C?  
 A) for      B) do-while  
 C) switch      D) goto
100. What is the output of the following code?  

```
int x = 5;
if (x == 5)
 printf("Hello");
else
 printf("World");
```

 A) Hello  
 B) World  
 C) Compilation error  
 D) No output
101. Which statement is used to skip the current iteration of a loop?  
 A) break      B) continue  
 C) goto      D) exit
102. What is the output of `printf("%d", 3 % 2);`?  
 A) 1      B) 0  
 C) 1.5      D) Compilation error
103. Which loop executes at least once even if the condition is false?  
 A) for      B) while  
 C) do-while      D) if-else
104. What is the purpose of the break statement in a switch block?  
 A) To exit the program  
 B) To skip the current iteration  
 C) To terminate the switch block  
 D) To continue to the next case
105. Which of the following is a valid for loop syntax?  
 A) for (int i=0; i<10; i++)  
 B) for (i=0; i<10)  
 C) for (;)  
 D) All of the above
106. What is the output of the following code?  

```
int i = 0;
while (i < 3) {
 printf("%d ", i);
 i++;
}
```

 A) 0 1 2      B) 1 2 3  
 C) Infinite loop      D) No output
107. Which operator is used for logical AND in C?  
 A)  $\&$       B)  $\&\&$   
 C)  $\|\|$       D) !
108. What is the output of the following code?  

```
int x = 10;
printf("%d", x > 5 ? 1 : 0);
```

 A) 1      B) 0  
 C) 10      D) 5
109. Which statement is used to transfer control unconditionally to a labeled statement?  
 A) break      B) continue  
 C) goto      D) return
110. What is the output of the following code?  

```
for (int i=1; i<=5; i+=2)
 printf("%d ", i);
```

 A) 1 3 5      B) 1 2 3 4 5  
 C) 2 4      D) Infinite loop
111. Which loop is best suited when the number of iterations is known?  
 A) while      B) do-while  
 C) for      D) if-else
112. What is the output of the following code?  

```
int i = 5;
do {
 printf("%d ", i);
 i--;
} while (i > 0);
```

 A) 5 4 3 2 1      B) 5 4 3 2 1 0  
 C) Infinite loop      D) No output
113. Which of the following is NOT a jump statement in C?  
 A) break      B) continue  
 C) goto      D) switch
114. What is the output of the following code?  

```
int x = 0;
if (x = 1)
 printf("True");
else
 printf("False");
```

 A) True      B) False  
 C) Compilation error      D) No output
115. Which of the following is a valid switch case label?  
 A) case 1:      B) case 'A':  
 C) case 1.5:      D) Both a and b

95. (B)    96. (C)    97. (A)    98. (C)    99. (A)    100. (A)    101. (B)    102. (A)    103. (C)    104. (C)    105. (D)  
 106. (A)    107. (B)    108. (A)    109. (C)    110. (A)    111. (C)    112. (A)    113. (D)    114. (A)    115. (D)

116. What is the output of the following code?  

```
for (int i=0; i<5; i++) {
 if (i == 3)
 break;
 printf("%d ", i);
}
```

 A) 0 1 2                      B) 0 1 2 3  
 C) 0 1 2 3 4                D) Infinite loop
117. Which statement is used to handle default cases in switch?  
 A) else                      B) default  
 C) case default:            D) otherwise
118. What is the output of the following code?  

```
int i = 10;
while (i--) {
 printf("%d ", i);
}
```

 A) 9 8 7 6 5 4 3 2 1 0  
 B) 10 9 8 7 6 5 4 3 2 1  
 C) Infinite loop  
 D) No output
119. Which loop is terminated by a semicolon?  
 A) for                      B) while  
 C) do-while                D) All of the above
120. What is the output of the following code?  

```
int i = 0;
while (i < 3) {
 if (i == 1)
 continue;
 printf("%d ", i);
 i++;
}
```

 A) 0 1 2                      B) 0 2  
 C) Infinite loop            D) No output
121. Which of the following is a valid nested loop structure?  
 A) for inside while        B) while inside for  
 C) do-while inside for    D) All of the above
122. What is the output of the following code?  

```
int x = 5;
switch (x) {
 case 1: printf("One");
 case 5: printf("Five");
 default: printf("Default");
}
```

 A) Five                      B) FiveDefault  
 C) Default                D) Compilation error
123. Which statement is used to exit a program prematurely?  
 A) break                    B) continue  
 C) goto                    D) exit
124. Which of the following is a decision control statement in C?  
 A) for                      B) while  
 C) if                        D) goto
125. The else part of an if-else statement is executed when:  
 A) The if condition is true  
 B) The if condition is false  
 C) Always  
 D) When a variable is uninitialized
126. Which operator is used as a shorthand for if-else condition?  
 A) &&                      B) ?:  
 C) ==                      D) !
127. In a nested if-else, how is the inner if evaluated?  
 A) Only if outer if is true  
 B) Independently of outer if  
 C) Only if outer if is false  
 D) Always executed
128. Which of these statements is TRUE about the switch statement?  
 A) Works only with float values  
 B) Can evaluate string expressions directly  
 C) Uses constant expressions for case labels  
 D) Executes all cases automatically
129. In a switch statement, the default block is executed when:  
 A) All cases match  
 B) None of the cases match  
 C) First case matches  
 D) Break is used
130. What is the entry-controlled loop in C?  
 A) do-while                B) goto  
 C) while                    D) break
131. The loop that always executes at least once is:  
 A) while                    B) for  
 C) do-while                D) switch
132. How many times will the body of this loop execute?  

```
while(0)
```

 A) Infinite times            B) Once  
 C) Zero times              D) Twice
133. What is the output of for(i=0; i<3; i++) printf("%d ", i);?  
 A) 0 1 2                      B) 1 2 3  
 C) 0 1 2 3                  D) 1 2
134. In a for loop, the initialization part:  
 A) Executes after the loop  
 B) Executes every iteration  
 C) Executes only once  
 D) Executes only when condition is false
135. What is the main advantage of using the for loop over while?  
 A) Cannot be used for fixed iterations  
 B) Initialization and increment are inside the loop body only  
 C) Initialization, condition, and increment are grouped together  
 D) It is always faster

116. (A)    117. (B)    118. (A)    119. (C)    120. (C)    121. (D)    122. (B)    123. (D)    124. (C)    125. (B)    126. (B)  
 127. (A)    128. (C)    129. (B)    130. (C)    131. (C)    132. (C)    133. (A)    134. (C)    135. (C)

136. **Nested loops are:**  
 A) Loops within if statements  
 B) Loops within loops  
 C) Allowed only with while loops  
 D) Not allowed in C
137. **The continue statement:**  
 A) Terminates the program  
 B) Skips current iteration and continues with the next  
 C) Skips remaining iterations  
 D) Exits from the loop immediately
138. **The break statement:**  
 A) Continues the current iteration  
 B) Transfers control out of the loop  
 C) Restarts the loop from beginning  
 D) Only works in for loops
139. **The goto statement:**  
 A) Cannot transfer control backward  
 B) Should be avoided as it makes code unstructured  
 C) Is required in every C program  
 D) Always used with switch
140. **The loop control variable in a for loop is usually updated in:**  
 A) Initialization section  
 B) Condition section  
 C) Increment section  
 D) Body of the loop only
141. **How many times will the following loop run?**  

```
int i=1;
do {
 printf("%d", i);
} while(i=i-1);
```

 A) Infinite times      B) Once  
 C) Twice      D) Zero times
142. **What will be printed by this code?**  

```
int i = 5;
while(i) {
 i = i - 1;
 if(i == 3)
 continue;
 printf("hello\n");
}
```

 A) hello printed 5 times  
 B) hello printed 4 times  
 C) hello printed 3 times  
 D) hello printed infinite times
143. **What is the output of:**  

```
for(num = 2, sum = 0;;) {
 sum = sum + num;
 if(num > 10)
 break;
 num = num + 1;
}
printf("%d", sum);
```
- A) 0      B) 10  
 C) 65      D) 55
144. **The statement for(;;) indicates:**  
 A) Syntax error      B) Infinite loop  
 C) Executes once only      D) Never executes
145. **In a switch, multiple case labels can be associated with:**  
 A) Only integers  
 B) Floating-point numbers  
 C) Strings only  
 D) All data types
146. **Choose the correct statement about do-while and while:**  
 A) while always executes at least once  
 B) do-while may never execute  
 C) do-while executes at least once regardless of condition  
 D) Both are entry-controlled
147. **The main difference between break and continue is:**  
 A) Break exits loop; continue skips to next iteration  
 B) Both do the same thing  
 C) Continue exits loop; break skips to next iteration  
 D) Break only used in while, continue only in for
148. **What happens if condition in a for loop is omitted, like for(;;)?**  
 A) Compile error  
 B) Condition is assumed false  
 C) Creates an infinite loop  
 D) Executes once only
149. **What is the correct way to declare an integer array of size 10 in C?**  
 A) int array[10];  
 B) array[10] int;  
 C) int array = new int[10];  
 D) int array(10);
150. **How is a string terminated in C?**  
 A) \n      B) \0  
 C) \t      D) \s
151. **What is the output of the following code?**  

```
char str[] = "HELLO";
printf("%d", strlen(str));
```

 A) 5      B) 6  
 C) 4      D) Compilation error
152. **Which function copies the contents of one string to another?**  
 A) strcmp()      B) strlen()  
 C) strcpy()      D) strcat()
153. **What is the output of the following code?**  

```
int arr[3] = {1, 2};
printf("%d", arr[2]);
```

 A) 1      B) 2  
 C) 0      D) Garbage value

136. (B)    137. (B)    138. (B)    139. (B)    140. (C)    141. (B)    142. (C)    143. (C)    144. (B)    145. (A)    146. (C)  
 147. (A)    148. (C)    149. (A)    150. (B)    151. (A)    152. (C)    153. (C)

154. Which of the following correctly initializes a 2D array?  
 A) `int arr[2][3] = {{1, 2}, {3, 4}};`  
 B) `int arr[][] = {{1, 2, 3}, {4, 5, 6}};`  
 C) `int arr[2][3] = {1, 2, 3, 4, 5, 6};`  
 D) Both a and c
155. What is the output of the following code?  
`char str1[] = "C";`  
`char str2[] = "PROGRAM";`  
`printf("%s", strcat(str1, str2));`  
 A) CPROGRAM                      B) C PROGRAM  
 C) Compilation error            D) Runtime error
156. Which function compares two strings lexicographically?  
 A) `strcmp()`                      B) `strlen()`  
 C) `strcpy()`                      D) `strrev()`
157. What is the output of the following code?  
`char str[] = "HELLO";`  
`printf("%c", str[1]);`  
 A) H                                  B) E  
 C) L                                  D) O
158. How do you declare a string that can hold "Hello World"?  
 A) `char str[11];`  
 B) `char str[12];`  
 C) `char str[] = "Hello World";`  
 D) Both b and c
159. What is the output of the following code?  
`int arr[] = {1, 2, 3};`  
`printf("%d", sizeof(arr)/sizeof(int));`  
 A) 1                                  B) 3  
 C) 6                                  D) Compilation error
160. Which function reverses a string in C?  
 A) `strrev()`                      B) `reverse()`  
 C) `strcmp()`                      D) `strcpy()`
161. What is the output of the following code?  
`char str[10] = "HELLO";`  
`printf("%d", sizeof(str));`  
 A) 5                                  B) 6  
 C) 10                                D) 11
162. Which function converts a string to lowercase?  
 A) `tolower()`                    B) `strlwr()`  
 C) `lowercase()`                D) `strcase()`
163. What is the output of the following code?  
`char str[] = "C";`  
`printf("%d", strcmp(str, "C"));`  
 A) 0                                  B) 1  
 C) -1                                D) 67
164. How do you concatenate two strings without `strcat()`?  
 A) Use `strcpy()` + pointer arithmetic  
 B) Use `strncat()`  
 C) Use a loop to copy characters  
 D) Both A and C
165. What is the output of the following code?  
`int arr[2][2] = {{1}, {2}};`  
`printf("%d", arr[1][1]);`  
 A) 1                                  B) 2  
 C) 0                                  D) Garbage value
166. Which function finds the first occurrence of a character in a string?  
 A) `strchr()`                      B) `strstr()`  
 C) `strfind()`                    D) `strpos()`
167. What is the output of the following code?  
`printf("%.3s", "HELLO");`  
 A) HEL                              B) HELLO  
 C) HE                                D) HEL LO
168. Which of the following is a valid string initialization?  
 A) `char str[] = {'H', 'E', 'L', 'L', 'O'};`  
 B) `char str[5] = "HELLO";`  
 C) `char *str = "HELLO";`  
 D) Both a and c
169. What is the output of the following code?  
`char str[] = "HELLO";`  
`printf("%d", str[5]);`  
 A) H  
 B) O  
 C) 0 (ASCII value of \0)  
 D) Garbage value
170. Which function returns the position of a substring in a string?  
 A) `strpos()`                      B) `strstr()`  
 C) `strchr()`                      D) `strfind()`
171. What is the output of the following code?  
`char str[10];`  
`scanf("%s", str); // Input: "Hello World"`  
`printf("%s", str);`  
 A) Hello World                    B) Hello  
 C) World                            D) Compilation error
172. Which function converts a string to uppercase?  
 A) `strupr()`                      B) `toupper()`  
 C) `upper()`                        D) `strcase()`
173. What is the output of the following code?  
`printf("%s", strrev("HELLO"));`  
 A) HELLO                            B) OLLEH  
 C) Compilation error            D) Runtime error
174. Which of the following is true about arrays in C?  
 A) Arrays can store elements of different data types.  
 B) Arrays are always dynamic in size.  
 C) Arrays are homogeneous data structures.  
 D) Array size can be changed at runtime.
175. What is the index range of an array of size 10 in C?  
 A) 1 to 10                          B) 0 to 9  
 C) 0 to 10                         D) 1 to 9

154. (D)    155. (D)    156. (A)    157. (B)    158. (D)    159. (B)    160. (A)    161. (C)    162. (B)    163. (A)    164. (D)  
 165. (C)    166. (A)    167. (A)    168. (D)    169. (C)    170. (B)    171. (B)    172. (A)    173. (C)    174. (C)    175. (B)

176. Which of the following correctly initializes an integer array of size 5?  
 A) `int arr[5] = (1, 2, 3, 4, 5);`  
 B) `int arr[5] = {1, 2, 3, 4, 5};`  
 C) `int arr(5) = {1, 2, 3, 4, 5};`  
 D) `int arr[] = (1, 2, 3, 4, 5);`
177. What is the main advantage of using symbolic constants for array size?  
 A) Saves memory  
 B) Makes code easier to modify  
 C) Increases execution speed  
 D) Reduces syntax errors
178. What happens if we access an array index beyond its size in C?  
 A) Compilation error  
 B) Runtime error always  
 C) Undefined behavior  
 D) Automatic wrap-around
179. How are strings stored in C?  
 A) As arrays of integers  
 B) As arrays of characters ending with `'\0'`  
 C) As separate variables for each character  
 D) As linked lists
180. Which of these declarations properly defines a string with "HELLO"?  
 A) `char str[] = {'H','E','L','L','O'};`  
 B) `char str[] = "HELLO";`  
 C) `char str[5] = "HELLO";`  
 D) `char str[4] = "HELLO";`
181. What is the size of `char carray[] = "HELLO";`?  
 A) 5                                      B) 6  
 C) 4                                      D) 7
182. Which function is used to determine the length of a string?  
 A) `strlen()`                              B) `strlen()`  
 C) `length()`                              D) `strsize()`
183. What will `strcmp("APPLE", "APPLE")` return?  
 A) Positive value                      B) Negative value  
 C) Zero                                      D) Error
184. Which function is used to copy one string to another?  
 A) `copy()`                                      B) `strcpy()`  
 C) `strcpy()`                                      D) `assign()`
185. Which function appends one string to another?  
 A) `strcat()`                                      B) `stradd()`  
 C) `append()`                                      D) `join()`
186. Which header file should be included to use string functions like `strcpy`, `strcat`?  
 A) `<stdio.h>`                                      B) `<stdlib.h>`  
 C) `<string.h>`                                      D) `<math.h>`
187. What is the output of `printf("%10.2s", "hello");`?  
 A) `he`                                              B) `he`  
 C) `hello`                                              D) `hello`
188. Which function converts all characters of a string to uppercase?  
 A) `strupr()`                                      B) `strlwr()`  
 C) `toupper()`                                      D) `strupper()`
189. Which function reverses the given string?  
 A) `strrev()`                                      B) `strreverse()`  
 C) `reverse()`                                      D) `revstr()`
190. How are multidimensional arrays stored in C?  
 A) Column-wise  
 B) Row-wise  
 C) Randomly  
 D) Based on compiler settings
191. What is the correct declaration for a 3x5 float array named `balance`?  
 A) `float balance(3,5);`    B) `float balance[3][5];`  
 C) `float balance{3,5};`    D) `float balance<3,5>;`
192. What happens when a string literal is assigned directly to a char array declared without size, as in `char str[] = "Hello";`?  
 A) Error  
 B) Size is automatically set including `'\0'`  
 C) Only first character is stored  
 D) Only first four characters are stored
193. The statement `char str[4] = "unix";` is problematic because:  
 A) String has no null terminator  
 B) Array size is too small for "unix" and `'\0'`  
 C) Compiler automatically adds extra space  
 D) No issue
194. In an array of strings `char names[5][10];`, what does 10 specify?  
 A) Number of strings  
 B) Maximum length of each string including `'\0'`  
 C) Total array size  
 D) Number of characters excluding `'\0'`
195. What is the return value of `strspn("ALEXANDER", "ALEXSMITH");`?  
 A) 4                                              B) 0  
 C) 5                                              D) 8
196. Which string function copies n characters from one string to another?  
 A) `strncpy()`                                      B) `strcpy()`  
 C) `strncat()`                                      D) `strlwr()`
197. Which function searches for a substring within another string?  
 A) `strstr()`                                      B) `strchr()`  
 C) `search()`                                      D) `strfind()`
198. The function `stricmp()` does what?  
 A) Copies string ignoring case  
 B) Compares two strings ignoring case  
 C) Converts string to lower case  
 D) Concatenates strings

176. (B)    177. (B)    178. (C)    179. (B)    180. (B)    181. (B)    182. (B)    183. (C)    184. (B)    185. (A)    186. (C)  
 187. (B)    188. (A)    189. (A)    190. (B)    191. (B)    192. (B)    193. (B)    194. (B)    195. (A)    196. (A)    197. (A)  
 198. (B)

## Functions, Structures, Pointers and File Handling in 'C'

1. What is the primary purpose of using functions in C?  
 A) To increase program execution speed  
 B) To make programming modular and reduce complexity  
 C) To allocate memory dynamically  
 D) To define global variables
2. Which of the following is the correct syntax for a function declaration?  
 A) `int function_name(int a, b);`  
 B) `return_type function_name(parameter list);`  
 C) `function_name(return_type, parameters);`  
 D) `void function_name();`
3. What is a function prototype in C?  
 A) The definition of a function  
 B) A declaration that specifies the function's name, return type, and parameters  
 C) A place holder for recursive functions  
 D) A macro definition
4. Which of the following is a valid return statement?  
 A) `return (2, 3);`  
 B) `return (x * y);`  
 C) `return (a, b);`  
 D) `return;` (for a non-void function)
5. What is the default return type of a function in C if not specified?  
 A) void                                      B) float  
 C) int                                         D) char
6. Which storage class is the default for variables declared inside a function?  
 A) static                                    B) extern  
 C) auto                                       D) register
7. What is the scope of an automatic (auto) variable?  
 A) Entire program  
 B) Only within the function where it is declared  
 C) Across multiple functions  
 D) Global scope
8. Which of the following is true about external (extern) variables?  
 A) They are local to a function.  
 B) They retain their value between function calls.  
 C) Their scope is limited to the block where they are declared.  
 D) They must be defined inside `main()`.
9. What happens if a static variable is not initialized explicitly?  
 A) It contains a garbage value.  
 B) It is automatically initialized to zero.  
 C) It causes a compilation error.  
 D) It is initialized to a random address.
10. Which of the following is a valid use of a register variable?  
 A) Storing large arrays  
 B) Storing addresses of other variables  
 C) Frequently accessed loop counters  
 D) Global variables
11. Which type of function call does not pass any arguments and does not return any value?  
 A) Type 1  
 B) Type 2  
 C) Type 3  
 D) Type 4
12. In a function call, what must match between actual and formal arguments?  
 A) Only data type  
 B) Only variable names  
 C) Type, order, and number  
 D) Only order
13. What is the major drawback of "call by value"?  
 A) It requires more memory.  
 B) Changes to arguments are not reflected in the calling function.  
 C) It cannot be used with recursive functions.  
 D) It only works with global variables.
14. What is the output of the following code?  

```
void swap(int a, int b) {
 int t = a;
 a = b;
 b = t;
}

int main() {
 int x = 2, y = 3;
 swap(x, y);
 printf("%d %d", x, y);
 return 0;
}
```

 A) 2 3                                      B) 3 2  
 C) 0 0                                      D) Compilation error
15. What is recursion in C?  
 A) A loop structure  
 B) A function calling another function  
 C) A function calling itself  
 D) A macro definition
16. What is the most important feature of a recursive function?  
 A) It must have a loop.  
 B) It must have a terminating condition.  
 C) It must use global variables.  
 D) It must return a float value.

- |         |         |         |         |         |        |        |        |        |         |         |
|---------|---------|---------|---------|---------|--------|--------|--------|--------|---------|---------|
| 1. (B)  | 2. (B)  | 3. (B)  | 4. (B)  | 5. (C)  | 6. (C) | 7. (B) | 8. (B) | 9. (B) | 10. (C) | 11. (A) |
| 12. (C) | 13. (B) | 14. (A) | 15. (C) | 16. (B) |        |        |        |        |         |         |