**C**

**Easy Level Questions (1–40)**

**1. Basics of C**

1. **Which keyword is used to declare a variable in C?**  
   A. var  
   B. int  
   C. define  
   D. declare  
   **Answer:** B
2. **Which of the following is the correct syntax to print “Hello, World!” in C?**  
   A. printf("Hello, World!");  
   B. System.out.println("Hello, World!");  
   C. print("Hello, World!");  
   D. cout << "Hello, World!";  
   **Answer:** A
3. **What is the size of an int data type in C?**  
   A. 2 bytes  
   B. 4 bytes  
   C. Compiler dependent  
   D. 8 bytes  
   **Answer:** C
4. **Which function is used to read a single character from the console in C?**  
   A. getchar()  
   B. gets()  
   C. scanf()  
   D. putchar()  
   **Answer:** A
5. **What will be the output of the following code?**

c

CopyEdit

int a = 10, b = 20;

printf("%d", a + b);

A. 30  
B. 1020  
C. Compilation Error  
D. None of the above  
**Answer:** A

**2. Control Structures**

1. **Which keyword is used to start a conditional statement in C?**  
   A. if  
   B. for  
   C. while  
   D. switch  
   **Answer:** A
2. **What is the purpose of the break statement in a loop?**  
   A. To exit a loop prematurely  
   B. To restart the loop  
   C. To skip to the next iteration  
   D. None of the above  
   **Answer:** A
3. **What will be the output of this code?**

c

CopyEdit

int i = 0;

while (i < 5) {

printf("%d ", i);

i++;

}

A. 0 1 2 3 4  
B. 1 2 3 4 5  
C. 0 1 2 3 4 5  
D. Infinite Loop  
**Answer:** A

**3. Functions**

1. **What is the correct syntax for declaring a function in C?**  
   A. void func();  
   B. function func();  
   C. define func();  
   D. int func()  
   **Answer:** A
2. **Which header file is required to use the printf() function in C?**  
   A. #include <conio.h>  
   B. #include <math.h>  
   C. #include <stdio.h>  
   D. #include <stdlib.h>  
   **Answer:** C

**1. Basic Syntax**

1. **Which of the following is the correct way to declare a variable in C?**  
   A. int 5x;  
   B. int x = 5;  
   C. x = int 5;  
   D. 5 = int x;  
   **Answer:** B
2. **What is the size of an int variable in C?**  
   A. 1 byte  
   B. 2 bytes  
   C. 4 bytes  
   D. 8 bytes  
   **Answer:** C
3. **Which of the following is used to terminate a statement in C?**  
   A. .  
   B. :  
   C. ;  
   D. ,  
   **Answer:** C

**2. Variables and Constants**

1. **What is the default value of an uninitialized global variable in C?**  
   A. 0  
   B. Garbage value  
   C. NULL  
   D. Undefined  
   **Answer:** A
2. **Which of the following is a valid constant in C?**  
   A. const int x = 10;  
   B. constant int x = 10;  
   C. int x = constant 10;  
   D. x = const 10;  
   **Answer:** A

**3. Operators**

1. **What is the result of the following expression: 5 + 3 \* 2?**  
   A. 11  
   B. 16  
   C. 13  
   D. 8  
   **Answer:** C
2. **Which of the following is the correct syntax for a conditional operator in C?**  
   A. condition ? value1 : value2;  
   B. value1 ? condition : value2;  
   C. condition ? value2 : value1;  
   D. value1 : condition ? value2;  
   **Answer:** A

**4. Functions**

1. **What is the correct way to call a function in C?**  
   A. function();  
   B. function;  
   C. call function();  
   D. invoke function();  
   **Answer:** A
2. **Which of the following is a correct function definition?**  
   A. int function(int a, int b);  
   B. int function(int a, b);  
   C. function(int a, int b)  
   D. int function(int a, int b) { }  
   **Answer:** D
3. **What is the output of the following code?**

c

CopyEdit

int add(int x, int y) {

return x + y;

}

int main() {

printf("%d", add(3, 4));

return 0;

}

A. 7  
B. 3  
C. 4  
D. 34  
**Answer:** A

**5. Control Structures**

1. **Which of the following is a valid loop in C?**  
   A. for(int i = 0; i < 5; i++) { }  
   B. for int(i = 0; i < 5; i++) { }  
   C. loop(int i = 0; i < 5; i++) { }  
   D. for(int i, 0, 5) { }  
   **Answer:** A
2. **What is the output of the following code?**

c

CopyEdit

int i = 5;

while (i > 0) {

printf("%d ", i);

i--;

}

A. 5 4 3 2 1  
B. 5 4 3 2  
C. 5 4 3 2 1 0  
D. 1 2 3 4 5  
**Answer:** A

1. **What will the following code output?**

c

CopyEdit

if (10 > 5) {

printf("True");

} else {

printf("False");

}

A. True  
B. False  
C. True False  
D. No output  
**Answer:** A

**6. Arrays**

1. **What will the following code print?**

c

CopyEdit

int arr[] = {10, 20, 30};

printf("%d", arr[1]);

A. 20  
B. 10  
C. 30  
D. 0  
**Answer:** A

1. **Which of the following is the correct way to define an array of 10 integers?**  
   A. int arr(10);  
   B. int arr[10];  
   C. int arr = new int[10];  
   D. int arr{10};  
   **Answer:** B
2. **What is the output of the following code?**

c

CopyEdit

int arr[] = {1, 2, 3};

printf("%d", sizeof(arr));

A. 3  
B. 6  
C. 12  
D. Compilation error  
**Answer:** C

**7. Strings**

1. **What is the size of the string "Hello" in C?**  
   A. 5  
   B. 6  
   C. 4  
   D. 1  
   **Answer:** B
2. **Which function is used to get the length of a string in C?**  
   A. stringLength()  
   B. strlen()  
   C. strLen()  
   D. sizeOf()  
   **Answer:** B
3. **What is the correct way to declare a string in C?**  
   A. char str[] = "Hello";  
   B. string str = "Hello";  
   C. char str = "Hello";  
   D. string str[] = "Hello";  
   **Answer:** A

**8. Pointers**

1. **What is the value of \*ptr in the following code?**

c

CopyEdit

int x = 5;

int \*ptr = &x;

printf("%d", \*ptr);

A. x  
B. 5  
C. ptr  
D. Undefined  
**Answer:** B

**Medium Level Questions (41–80)**

**41. Arrays and Strings**

1. **What will be the output of the following code?**

c

CopyEdit

int arr[] = {10, 20, 30};

printf("%d", arr[1]);

A. 10  
B. 20  
C. 30  
D. Compilation Error  
**Answer:** B

1. **Which of the following is true for a string in C?**  
   A. It is a character array ending with \0.  
   B. It is a collection of integers.  
   C. It doesn’t require a null terminator.  
   D. None of the above.  
   **Answer:** A
2. **What will be the output of this code?**

c

CopyEdit

char str[] = "Hello";

printf("%c", str[4]);

A. o  
B. H  
C. l  
D. \0  
**Answer:** A

**42. Pointers**

1. **What does this pointer declaration mean: int \*p;?**  
   A. p is an integer variable.  
   B. p is a pointer to an integer.  
   C. p is an integer array.  
   D. None of the above.  
   **Answer:** B
2. **What will happen if you try to access a null pointer in C?**  
   A. Program crash  
   B. Undefined behavior  
   C. Returns zero  
   D. Compilation error  
   **Answer:** B

**43. Functions**

1. **What is the output of this code?**

c

CopyEdit

void add(int a, int b) {

printf("%d", a + b);

}

int main() {

add(5, 10);

}

A. 15  
B. 510  
C. Compilation error  
D. None of the above.  
**Answer:** A

1. **Which of the following is a valid way to pass an array to a function?**  
   A. function(array[])  
   B. function(\*array)  
   C. function(array, size)  
   D. All of the above  
   **Answer:** D

**44. Structures**

1. **What is the correct way to declare a structure in C?**  
   A. struct { int a; };  
   B. structure { int a; };  
   C. struct example { int a; };  
   D. None of the above  
   **Answer:** C
2. **How is a structure variable accessed in C?**  
   A. Using the . operator  
   B. Using the -> operator  
   C. Using both . and -> depending on usage  
   D. None of the above  
   **Answer:** C

**45. File Handling**

1. **Which function is used to open a file in C?**  
   A. fopen()  
   B. openfile()  
   C. open()  
   D. readfile()  
   **Answer:** A
2. **What is the mode to open a file for both reading and writing?**  
   A. "r"  
   B. "w+"  
   C. "r+"  
   D. "rw"  
   **Answer:** C

**1. Functions and Recursion**

1. **What will be the output of the following recursive function?**

c

CopyEdit

int factorial(int n) {

if (n == 0)

return 1;

else

return n \* factorial(n - 1);

}

int main() {

printf("%d", factorial(5));

return 0;

}

A. 120  
B. 24  
C. 5  
D. 1  
**Answer:** A

1. **Which of the following statements is true about recursion in C?**  
   A. It always leads to a segmentation fault.  
   B. It involves a function calling itself.  
   C. Recursive functions cannot return values.  
   D. Recursive functions always execute faster than loops.  
   **Answer:** B

**2. Pointers and Memory Management**

1. **What is the purpose of the free() function in C?**  
   A. To allocate memory  
   B. To free dynamically allocated memory  
   C. To clear the stack  
   D. To display memory contents  
   **Answer:** B
2. **What is the output of the following code?**

c

CopyEdit

int x = 10;

int \*ptr = &x;

\*ptr = 20;

printf("%d", x);

A. 10  
B. 20  
C. Error  
D. Segmentation Fault  
**Answer:** B

**3. Arrays**

1. **Which of the following statements about arrays is false?**  
   A. Arrays in C are static in size.  
   B. Array indices in C start from 1.  
   C. Arrays store elements of the same type.  
   D. Arrays can be passed to functions by reference.  
   **Answer:** B
2. **What is the output of the following code?**

c

CopyEdit

int arr[] = {1, 2, 3};

printf("%d", arr[1]);

A. 1  
B. 2  
C. 3  
D. Error  
**Answer:** B

1. **What is the correct syntax to declare an array of 3 integers and initialize it with values 10, 20, and 30?**  
   A. int arr[3] = {10, 20, 30};  
   B. int arr = {10, 20, 30};  
   C. int arr(3) = {10, 20, 30};  
   D. int arr[3]; arr = {10, 20, 30};  
   **Answer:** A

**4. Strings**

1. **Which function is used to compare two strings in C?**  
   A. compare()  
   B. strcmp()  
   C. stringCompare()  
   D. strcomp()  
   **Answer:** B
2. **What will the following code output?**

c

CopyEdit

char str1[] = "Hello";

char str2[] = "Hello";

if (strcmp(str1, str2) == 0)

printf("Match");

else

printf("No match");

A. Match  
B. No match  
C. Error  
D. Hello  
**Answer:** A

**5. Structs**

1. **What is the correct way to define a structure in C?**  
   A. struct person { int age; char name[50]; };  
   B. struct person { age int; name char[50]; };  
   C. structure person { int age; char name[50]; };  
   D. structure person { age int; name string[50]; };  
   **Answer:** A
2. **How do you access the members of a structure in C?**  
   A. . (dot operator)  
   B. -> (arrow operator)  
   C. Both A and B  
   D. None of the above  
   **Answer:** C
3. **What will be the output of the following code?**

c

CopyEdit

struct student {

int roll\_no;

char name[50];

};

struct student s1 = {1, "John"};

printf("%d %s", s1.roll\_no, s1.name);

A. 1 John  
B. John 1  
C. 1 John 50  
D. Error  
**Answer:** A

**6. File Handling**

1. **Which function is used to open a file in C?**  
   A. fopen()  
   B. open()  
   C. fileOpen()  
   D. file()  
   **Answer:** A
2. **Which function is used to read a single character from a file in C?**  
   A. fgetc()  
   B. getc()  
   C. read()  
   D. getchar()  
   **Answer:** A
3. **What is the purpose of the fclose() function in C?**  
   A. To read data from the file  
   B. To close a file  
   C. To open a file  
   D. To delete a file  
   **Answer:** B

**7. Dynamic Memory Allocation**

1. **What is the correct way to allocate memory dynamically for an array of 10 integers in C?**  
   A. int \*arr = malloc(10 \* sizeof(int));  
   B. int arr = malloc(10 \* sizeof(int));  
   C. int arr = (int \*) malloc(10 \* sizeof(int));  
   D. malloc(10 \* sizeof(int));  
   **Answer:** A
2. **Which function is used to release the dynamically allocated memory in C?**  
   A. free()  
   B. delete()  
   C. clear()  
   D. dispose()  
   **Answer:** A

**8. Macros**

1. **What will be the output of the following code?**

c

CopyEdit

#define SQUARE(x) (x \* x)

printf("%d", SQUARE(5 + 1));

A. 36  
B. 30  
C. 5  
D. 11  
**Answer:** B

**9. Bitwise Operators**

1. **What is the result of the expression 5 & 3 (bitwise AND)?**  
   A. 0  
   B. 1  
   C. 3  
   D. 5  
   **Answer:** B
2. **Which bitwise operator is used to shift bits to the left in C?**  
   A. <<  
   B. >>  
   C. &  
   D. |  
   **Answer:** A

**Hard Level Questions (81–100)**

**81. Advanced Pointers**

1. **What will the following code output?**

c

CopyEdit

int a = 10;

int \*p = &a;

int \*\*pp = &p;

printf("%d", \*\*pp);

A. 10  
B. Address of a  
C. Address of p  
D. Compilation error  
**Answer:** A

1. **What is pointer arithmetic?**  
   A. Adding or subtracting memory addresses  
   B. Performing arithmetic operations on pointers  
   C. Using pointers to traverse arrays  
   D. All of the above  
   **Answer:** D

**82. Dynamic Memory Allocation**

1. **What is the correct syntax to allocate memory dynamically for an array of 10 integers in C?**  
   A. int \*p = malloc(10);  
   B. int \*p = malloc(10 \* sizeof(int));  
   C. int \*p = malloc(int, 10);  
   D. int p = malloc(10);  
   **Answer:** B
2. **What happens if free() is called twice for the same memory location?**  
   A. Memory leak  
   B. Program crash  
   C. Undefined behavior  
   D. Compilation error  
   **Answer:** C

**83. Bit Manipulation**

1. **What is the result of this operation: 5 & 3?**  
   A. 1  
   B. 3  
   C. 5  
   D. 2  
   **Answer:** D
2. **What will be the output of the following code?**

c

CopyEdit

int x = 1;

printf("%d", x << 2);

A. 2  
B. 4  
C. 8  
D. 1  
**Answer:** C

**84. Complex Functionality**

1. **Which function pointer syntax is valid?**  
   A. int (\*func)(int, int);  
   B. int func(int \*);  
   C. func int(\*)  
   D. None of the above  
   **Answer:** A

Let me know if you'd like the detailed continuation of harder examples!

4o

**You said:**

give difficult questions 25

**ChatGPT said:**

ChatGPT

Here are **25 difficult questions** for **C language** to challenge advanced learners. These questions span topics such as pointers, memory management, bit manipulation, advanced functions, and file handling.

**1. Pointers and Memory Management**

1. **What does the following code print?**

c

CopyEdit

int a = 5, b = 10;

int \*p1 = &a, \*p2 = &b;

\*p1 = \*p2;

printf("%d %d", a, b);

A. 10 10  
B. 5 10  
C. 5 5  
D. Compilation Error  
**Answer:** A

1. **Which of the following statements about pointers is true?**  
   A. Pointers can only point to memory allocated dynamically.  
   B. The value of a pointer is always an integer.  
   C. Dereferencing a null pointer results in undefined behavior.  
   D. Pointers are always stored in registers.  
   **Answer:** C
2. **What is the output of this code?**

c

CopyEdit

int arr[] = {1, 2, 3, 4};

int \*p = arr;

printf("%d", \*(p + 2));

A. 1  
B. 2  
C. 3  
D. 4  
**Answer:** C

**2. Dynamic Memory Allocation**

1. **What is the primary difference between malloc() and calloc()?**  
   A. malloc() initializes the memory, while calloc() does not.  
   B. calloc() initializes the memory, while malloc() does not.  
   C. malloc() returns a void pointer, but calloc() does not.  
   D. Both behave the same.  
   **Answer:** B
2. **What happens if memory allocation with malloc() fails?**  
   A. The program crashes.  
   B. A null pointer is returned.  
   C. Garbage values are returned.  
   D. Undefined behavior occurs.  
   **Answer:** B
3. **What will happen if free() is called for an unallocated pointer?**  
   A. Memory leak  
   B. Undefined behavior  
   C. Segmentation fault  
   D. No effect  
   **Answer:** B

**3. File Handling**

1. **What will be the output of the following code?**

c

CopyEdit

FILE \*fp = fopen("test.txt", "w");

if (fp == NULL) {

printf("File not created");

} else {

fprintf(fp, "Hello World");

fclose(fp);

printf("Done");

}

A. File not created  
B. Done  
C. Hello World  
D. Compilation error  
**Answer:** B

1. **Which function moves the file pointer to a specified location?**  
   A. fread()  
   B. fseek()  
   C. ftell()  
   D. rewind()  
   **Answer:** B
2. **What is the return value of ftell() when called on an empty file?**  
   A. -1  
   B. 0  
   C. 1  
   D. Undefined  
   **Answer:** B

**4. Advanced Functions**

1. **Which is a valid function pointer declaration in C?**  
   A. int func\_ptr();  
   B. int \*func\_ptr(int, int);  
   C. int (\*func\_ptr)(int, int);  
   D. int \*\*func\_ptr();  
   **Answer:** C
2. **What does this code print?**

c

CopyEdit

void func(int a, int b, int (\*op)(int, int)) {

printf("%d", op(a, b));

}

int add(int x, int y) {

return x + y;

}

int main() {

func(5, 10, add);

return 0;

}

A. 5  
B. 10  
C. 15  
D. Compilation error  
**Answer:** C

**5. Bit Manipulation**

1. **What is the result of the following operation: 8 | 4?**  
   A. 8  
   B. 4  
   C. 12  
   D. 0  
   **Answer:** C
2. **Which operation can be used to check if the k-th bit of a number is set?**  
   A. num & (1 << k)  
   B. num | (1 << k)  
   C. num ^ (1 << k)  
   D. num >> k  
   **Answer:** A

**6. Multithreading (Advanced Topic)**

1. **Which library in C is typically used for multithreading?**  
   A. stdlib.h  
   B. pthread.h  
   C. threads.h  
   D. None of the above  
   **Answer:** B
2. **What is the purpose of pthread\_join() in multithreading?**  
   A. To create a new thread.  
   B. To terminate a thread.  
   C. To wait for a thread to finish.  
   D. To synchronize threads.  
   **Answer:** C

**7. Miscellaneous**

1. **What does the following code snippet print?**

c

CopyEdit

int x = 5;

printf("%d %d %d", x++, ++x, x);

A. Undefined behavior  
B. 5 7 6  
C. 6 6 6  
D. Compilation error  
**Answer:** A

1. **Which statement about volatile keyword is true?**  
   A. It allows the compiler to optimize a variable.  
   B. It prevents the compiler from optimizing a variable.  
   C. It indicates that a variable can be modified by another program or thread.  
   D. Both B and C.  
   **Answer:** D

**8. Advanced Memory Management**

1. **What is the difference between stack and heap memory in C?**  
   A. Stack memory is used for dynamic allocation, while heap is for static allocation.  
   B. Stack is faster but limited in size, while heap is slower and larger.  
   C. Stack memory persists until program termination, heap memory does not.  
   D. None of the above.  
   **Answer:** B
2. **What happens if memory allocated with malloc() is not freed?**  
   A. Program crashes.  
   B. Memory leak occurs.  
   C. Garbage collection clears it automatically.  
   D. Compilation error.  
   **Answer:** B

**9. Recursive Functions**

1. **What will be the output of the following recursive function?**

c

CopyEdit

int fact(int n) {

if (n == 0) return 1;

return n \* fact(n - 1);

}

printf("%d", fact(3));

A. 1  
B. 3  
C. 6  
D. 9  
**Answer:** C

**10. Edge Cases in Loops**

1. **What is the output of this infinite loop?**

c

CopyEdit

while (1) {

printf("Hello");

}

A. Hello once  
B. Hello printed infinitely  
C. Compilation error  
D. System crash  
**Answer:** B

1. **What is the result of this code?**

c

CopyEdit

for (int i = 0; i < 3; i++) {

for (int j = 0; j < 2; j++) {

printf("%d", i + j);

}

}

A. 012345  
B. 010203  
C. 001122  
D. 123123  
**Answer:** A