

## C (Programming Language)-part-1

**Q1. Which Code sample will eventually cause the computer to run out of memory?**

**ANS:**

```
while(1)
{
    char *smallString = (char *) malloc(10);
}
```

**Q2. What will this code print on the screen?**

```
int f1 (int a, int b)
{
    if (a > b)
    {
        printf("A is greater than B\n");
        return 1;
    }
    else
    {
        printf("B is greater than A");
        return 0;
    }
}

main()
{
    if (f1(20,10) || f1(10,20))
        printf("C is fun!\n");
}
```

**ANS:** A is greater than B

C is fun!

**Q3. What is the name for calling a function inside the same function?**

**ANS:** recursion

**Q4. What does the declaration of variable c2 demonstrate?**

```
main() {  
    char c1 ='a';  
    char c2 = c1+10;  
}
```

**ANS:** character arithmetic

**Q5. A pointer to void named vptr, has been set to point to a floating point variable named g. What is the valid way to dereference vptr to assign its pointed value to a float variable named f later in this program?**

```
float g;  
void *vptr=&g;
```

**ANS:** f = \*(float \*)vptr;

**Q6. What is this declaration an example of?**

```
struct s {  
    int i;  
    struct s *s1;  
    struct s *s2;  
};
```

**ANS:** a node

**Q7. A C header file is a file with extension .h that contains function declarations and macro definitions to be shared between several source files. Header files are listed using the preprocessing directive #include, and can have one of the following formats: #include <fileA> or #include "fileB". What is the difference between these two formats?**

**ANS:** The preprocessor will try to locate the fileA in a predetermined directory path. It will try to locate fileB in the same directory as the source file along with a custom directory path.

**Q8. Using a for loop, how could you write a C code to count down from 10 to 1 and display each number on its own line?**

**ANS:** `int i;`  
`for (i= 10; i>0; i--){`  
    `printf("%d\n", i);`  
`}// end of loop`

**Q9. What is not one of the reserved words in standard C?**

**volatile**  
**typeof**  
**register**  
**Typedef**

**ANS:** `typeof`

Reference:<https://www.ibm.com/docs/en/adfz/developer-for-zos/14.2.0?topic=programs-c-reserved-keywords>

**Q10. What does the program shown below return?**

```
int main(){
    int a=1, b=2, c=3, d=4;
    int x = a;
    if (a>b)
    if (b<c) x=b;
    else x=c;
    return(x);
}
```

**ANS:** 1

**Q11. Using the Union declaration below, how many bytes of memory space will the data of this type occupy?**

```
union Cars {
    char make[20];
    char model[30];
    short year;
} car;
```

**ANS:** 30

**Q12. In this code sample, what is not a problem for C compiler?**

```
main() {  
    constant int PI = 3.14;  
    printf("%f\n", pi);  
}
```

**ANS:** The value of PI needs to be set to 3.141593, not 3.14

**Q13. Which is the smallest program to compile and run without errors?**

**ANS:** `main() { }`

Reference: <https://www.beningo.com/150-the-wolrds-shortest-c-program/>

**Q14. What is optional in a function declaration?**

**ANS:** parameter names

**Q15. C treats all devices, such as the display and the keyboard, as files. Which files opens automatically when a program executes?**

**ANS:** stdout

**Q16. In which segment does dynamic memory allocation takes place?**

**ANS:** heap

Reference:

[http://www.it.uc3m.es/pbasanta/asng/course\\_notes/dynamic\\_memory\\_heap\\_en.html#:~:text=The%20dynamic%20memory%20that%20is,reads%20a%20set%20of%20words.](http://www.it.uc3m.es/pbasanta/asng/course_notes/dynamic_memory_heap_en.html#:~:text=The%20dynamic%20memory%20that%20is,reads%20a%20set%20of%20words.)

**Q17. Which function do you use to deallocate memory?**

**ANS:** `free()`

Reference: [https://www.tutorialspoint.com/c\\_standard\\_library/c\\_function\\_free.htm](https://www.tutorialspoint.com/c_standard_library/c_function_free.htm)

**Q18. In C language what are the basic building blocks that are constructed together to write a program?**

**ANS:** tokens

**Q19. When is memory for a variable allocated?**

**ANS:** during the declaration of the variable

**Q20. By default c uses the call by value method to pass arguments to functions. How can you invoke the call by reference method?**

**ANS:** by using pointers

**Q21. A union allows you to store different \_\_\_\_ in the same \_\_\_\_.**

**ANS:** Data types; Memory space

**Q22. What is the output of this program?**

```
main() {  
    char c1='a' , c2='A';  
    int i=c2-c1;  
    printf("%d", i);  
}
```

**ANS:** -32

**Q23. What is the difference between scanf() and sscanf() functions?**

**ANS:** The scanf() function reads formatted data from the keyboard; The sscanf() function reads formatted input from a string.

**Q24. What is not a valid command with this declaration?**

```
char *string[20] = { "one", "two", "three"};  
  
    printf("%c", string[1][2]);  
    printf("%s", string[1][2]);  
    printf("%s", string[1]);  
    printf(string[1]);
```

**ANS:** printf("%s", string[1][2]);

**Q25. What is the expression player->name equivalent to?**

**ANS:** `(\*player).name`

**Q26. Which program will compile and run without errors?**

**ANS:** `main() {  
  
int i=0;  
 for(; i<10; i++) ;  
}`

**Q27. What does this function call return?**

```
1 main() { float x = f1(10, 5); }  
2 float f1(int a, int b) { return (a/b); }
```

**ANS:** a compiler error

**Q28. What does this program create?**

```
#include <stdio.h>  
int main() {  
    int *p = NULL;  
    return 0;  
}
```

**ANS:** a NULL pointer

**Q29. What is an alternative way to write the expression `(\*x).y`?**

**ANS:** `x->y`

**Q30. Compile time errors are static errors that can be found where in the code?**

**ANS:** in declarations and definitions

**Q31. File input and output (I/O) in C is heavily based on the way it is done \_\_\_\_?**

**ANS:** in Unix

**Q32. What does the strcmp(str1, str2); function return?**

**ANS:** 0 if str1 and str2 are the same, a negative number if str1 is less than str2, a positive number if str1 is greater than str2

**Q33. What is the output of this program?**

```
int a=10, b=20;
int f1(a) { return(a*b); }
main() {
printf("%d", f1(5));
}
```

**ANS:** 100

**Q34. Which is *not* a correct way to declare a string variable?**

**ANS:** `char string = "Hello World";`

**Q35. Which choice is an include guard for the header file mylib.h?**

```
ANS: #ifndef MYLIB_H
#define MYLIB_H

// mylib.h content

#endif /* MYLIB_H */
```

**Q36. How many times does the code inside the while loop get executed in this program?**

```
main() {
    int x=1;
    while(x++<100) {
        x*=x;
        if(x<10) continue;
        if(x>50) break
    }
}
```

}

**ANS:** 3

**Q37. File input and output (I/O) in C is done through what?**

**ANS:** function calls

**Q38. Directives are translated by the?**

**ANS:** Pre-processor