

# Example of questions

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1. C program have an entrance function, what is the name of this function?
2. C program can have two **main** functions. Yes/No
3. You must include a head file to use the **printf** and **scanf**, what is the name of this head file?
4. How a C program is executed? ( )
  - A. start from the main function and end when main is returned
  - B. start from the first function and end at the last function
  - C. start from the first function and end at the first function
  - D. start from the main function and end at the last function
5. What are the mistakes in the below C code? Rewrite it!

# Example of questions

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```
1 #include <studio.h>
2 int main();
3 {
4     printf("Hello, World!");
5     return 0;
6 }
```

# Example of questions

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1. One byte has how many bits? ()

- A. 2
- B. 8
- C. 10
- D. 16

2. What is the output of below printf? ()

```
int main()
{
    int i = 10;
    int a = i++;
    int b = ++i;
    printf("% d,% d\n", a, b);
    return 0;
}
```

- A. 10, 11
- B. 10, 12
- C. 11, 11
- D. 11, 12

# Example of questions

3. In below operators, which one requires the operated variables to be integer? ()

- A. /
- B. ++
- C. \*=
- D. %

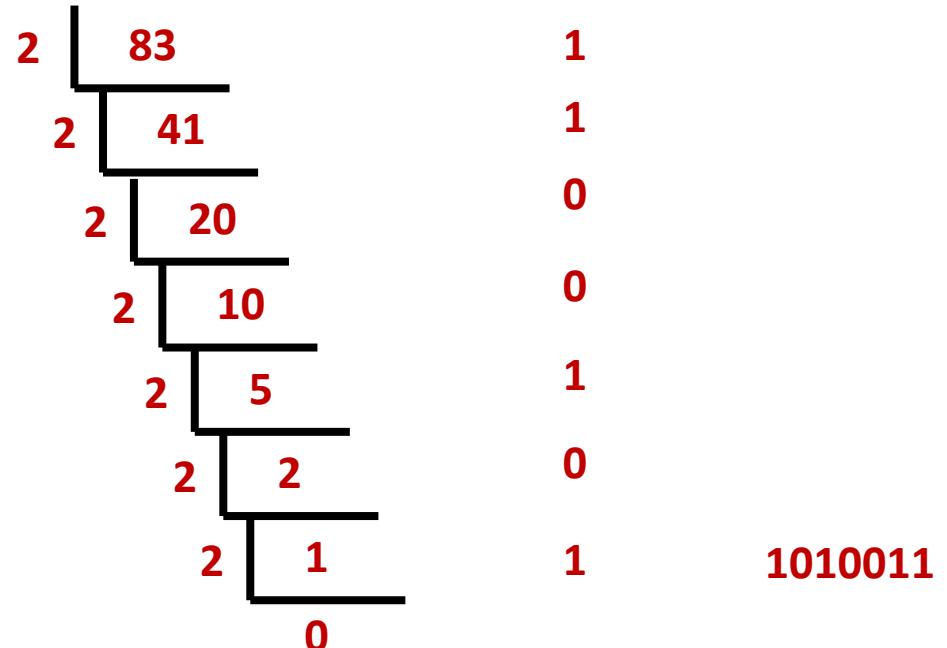
4. Please convert the 1001011 from binary to decimal, and convert 83 from decimal to binary, and writing down the procedure of conversion!

5. In below operators, which one can get the address of a variable? ()

- A. &
- B. &&
- C. !
- D. \*

1 0 0 1 0 1 1

$$2^6 + 2^3 + 2^1 + 2^0 = 75$$



# Example of questions

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1. What is the difference between **while** and **do-while**?

2. What is the output of below program? ( )

```
int main() {  
    char s1[40] = "country", s2[20] = "side";  
    int i = 0, j = 0;  
    while (s1[i] != '\0') i++;  
    while (s2[j] != '\0') s1[i++] = s2[j++];  
    s1[i] = 0;  
    printf("%s\n", s1);  
}
```

- A. side
- B. country
- C. sidetry
- D. countryside

# Example of questions

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3. **break** statement can be used to skip one iteration in for loop. Yes/No

4. What is the output of below program?

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

5. How to use while loop in C? ( )

- A. while x < y
- B. while (x < y)
- C. if x > y while
- D. while x < y then

# Example of questions

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1. If we use the array name as the argument for the function, what does the argument stand for? ( )
  - A. The value of the first element in the array
  - B. The value of all elements in the array
  - C. The address of the first element in the array
  - D. The address of all elements in the array
  
2. How to declare a 1D array? ( )
  - A. int a(10);
  - B. int a{10};
  - C. int [10]a;
  - D. int a[10];
  
3. How to declare a 2D array? ( )
  - A. int a[3][];
  - B. float a(3,4);
  - C. double a[3][4];
  - D. float a(3)(4);

# Example of questions

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4. Which statement can initialize a 2D array correctly? ( )

- A. int a[2][3]={{1,2},{3,4},{5,6}};
- B. int a[2][3]={{1,2},[],{4,5}};
- C. int a[][3]={1,2,3,4,5,6};
- D. int a[2][]={{1,2},{3,4},{4,5}};

5. Which statement is correct in checking if string s1 equals to string s2? ( )

- A. if(s1 == s2)
- B. if(s1 = s2)
- C. if(strcpy(s1,s2))
- D. if(strcmp(s1,s2)==0)

# Example of questions

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1. You can only output the results from the function by returning a value. Yes | No

2. When input is “1024”, which is output of following function? ( )

- A. 4201
- B. 7
- C. 1024
- D. 10

```
int DigitSum(int n)
{
    if(n == 0)
    {
        return 0;
    }
    return n % 10 + DigitSum(n/10);
}
```

3. What are the differences between (i) local variable and global variable, (ii) parameters and arguments?

# Example of questions

4. What is the result of following code? ()

- A. a = 1, b = 2
- B. a = 5, b = 10
- C. a = 15, b = 10
- D. a = 1, b = 10

```
#include<stdio.h>

int a = 1;

int fun(int a, int *b)
{
    a = 5;
    *b = 10;

    return a + *b;
}

int main()
{
    int a = 1, b = 2;
    a = fun(a, &b);
    printf("a = %d, b = %d", a, b);
    return 0;
}
```

5. Write a function to recursively sum from 1 to 100, in step of 2 (e.g.  $1 + 3 + 5 + \dots + 99$ )

```
int recurse(int N)
{
    if (N > 100)
    {
        return N;
    }
    else
    {
        return N + recurse(N + 2);
    }
}
```

# True or False

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- (T/F) Array has fixed size and it can only store one type of data.
- (T/F) A C program has only one main function.
- (T/F) Global variable and local variable cannot have the same name.
- (T/F) The members of struct must share the same data type.
- (T/F) #include <XXX.h> and #include “XXX.h” are the same, there is no difference in between
- (T/F) In C, the address of an integer variable can be assigned to a double pointer directly

# Fill in the blanks

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1. What is the output of the following program? \_\_\_\_\_.

```
#include<stdio.h>
int main()
{
    char* msg = "Hello My Brother, will have will have....";
    int x = 100;
    printf("%s, X=%d.\n", msg, x + 1);
    return 0;
}
```

# Fill in the blanks

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2. What is the output of the following program? \_\_\_\_\_.

```
int a = 32;  
void main()  
{  
    int a = 5;  
    a = a + 2;  
    printf("%d ", num);  
}
```

# Fill in the blanks

---

3. Convert the binary number 10101011 to decimal format: \_\_\_\_\_.
4. Convert the binary number 86 to binary format: \_\_\_\_\_.
5. You must include a head file to use the functions like “printf” and “scanf”, what is the name of this head file? \_\_\_\_\_.

# Single Choice Questions

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1. Which format specifier is commonly used to print an integer? ( )
- A.%f
  - B.%d
  - C.%c
  - D.%s

# Single Choice Questions

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2. Which of the following statements is correct about loop in C program? ( )
- A. while loop and do-while loop are the same, there is no difference in between
  - B. for loop cannot be used inside another while loop
  - C. do-while loop can execute the loop at least one time, this is different from for/while loop
  - D. If we want to break the for loop, we can use the keyword continue
3. Which keyword can be used to define a macro? ( )
- A. #import
  - B. #include
  - C. static
  - D. #define

# Single Choice Questions

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4. Suppose X is an integer variable. Which of the following expressions can determine whether X is an odd number? ( )

- A.  $X \% 2 = 1$
- B.  $X / 2 = 0$
- C.  $X \% 2 == 0$
- D.  $X / 2 == 0$

5. When passing an array into a function, what is actually passed into the function? ( )

- A. The size of the array
- B. The address of the first element in the array
- C. The value of the first element in the array
- D. I don't know

# Single Choice Questions

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6. Which statement is incorrect about global and local variables? ()
- A. Global variables can only be accessed within the function that defines them, while local variables can be accessed anywhere in the entire program.
  - B. Global variable and local variable have different space scope
  - C. Global variable can be accessed anywhere in the entire program
  - D. Local variable can only be accessed in the function where it is defined

7. How to access age in the struct? ()
- A. (\*p).age
  - B. s->age
  - C. p.age
  - D. \*p.age

```
struct student {  
    char name[20];  
    int age;  
} s, *p;  
p = &s;
```

# Single Choice Questions

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7. Which of the following operators can obtain the address of a variable? ()  
A. &&                    B. &                    C. ?                    D. \*

8. Given these definitions: char a[] = {'a','b','c','d','e','f'}; char \*ptr = &a[3]; which of the following statements is correct? ()  
A. \*(ptr+1) is 'd'  
B. \*(ptr+1) is 'c'  
C. \*(ptr+1) is 'e'  
D. \*(ptr+1) is 'f'

# Short answer questions

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1. What is a pointer in C? why do we need to use pointer?
2. What are the differences between array and struct?
3. What are the differences between for loop, while loop and do-while loop?
4. Convert the 101101101 from binary to decimal, and convert 89 from decimal to binary, and write down the procedure of conversion.

# Programming

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1. Write a for loop, sum all values between 20 and 120.
2. Use pointer to write a swap function, to swap the values of two integer variables inside the function, the function can be defined as:

**void swap(int \*a, int \*b);**

```
temp = *a;  
*a = *b;  
*b = temp;
```