

POINTERS

1. Can you combine the following two statements into one?

```
Char *p ;  
p = ( char* ) malloc ( 100 ) ;
```

2. Are the expressions `ptr++` and `++ptr` same?
3. Can you write another expression which does the same job as `++*ptr`?
4. What would be the equivalent pointer expression for referring the array element `a[i][j][k][l]`?
5. If size of an integer is 4 bytes what will be the output of the following program?

```
#include<stdio.h>  
  
int main( )  
{  
    int arr[ ] = { 12, 13, 14, 15, 16 } ;  
    printf( "%d %d %d\n" , sizeof ( arr ), sizeof ( arr[0] ) ) ;  
    return 0 ;  
}
```

6. What will be the output of the following program assuming that the array begins at location 1002 and size of an integer is 4 bytes?

```
#include<stdio.h>  
  
int main ( )  
{  
    int a[3][4] = {  
        1, 2, 3, 4,  
        5, 6, 7, 8,  
        9, 10, 11, 12  
    } ;  
    printf( "%u %u %u\n" , a[0] + 1 ), *( * ( a+0 ) + 1 ) ) ;  
    return 0 ;  
}
```

7. Will the following program compile?

```
#include<stdio.h>

int main( )
{
    char str[5] = "fast enough" ;
    return 0 ;
}
```

8. Which of the following is the correct output for the program given below?

```
#include<stdio.h>

int main( )
{
    int arr[3] = { 2, 3, 4 } ;
    char *p ;
    p = ( char* ) arr ;
    printf( "%d", *p ) ;
    p = p + 1 ;
    printf( "%d\n", * p ) ;
    return 0 ;
}
```

A. 2 3 B. 2 0 C. 1 0 D. Garbage values

9. Which of the following is the correct output for the program given below?

```
#include<stdio.h>

int main( )
{
    int arr[2][2][2] = { 10, 2, 3, 4, 5, 6, 7, 8 } ;
    int *p, *q ;
    p = &arr[1][1][1] ;
    q = ( int* )arr ;
    printf( "%d %d\n", *p, *q );
    return 0 ;
}
```

A. 8 10 B. 10 2 C. 8 1 D. Garbage value

10. What will be the output of the following program assuming that the array begin at the location 1002?

```
#include<stdio.h>

int main ( )
{
    int a[2][3][4] = {
        {
            1, 2, 3, 4,
            5, 6, 7, 8,
            9, 1, 1, 2
        },
        {
            2, 1, 4, 7,
            6, 7, 8, 9,
            0, 0, 0, 0
        }
    };

    printf( "%u %u %u %d\n", a, *a, **a, ***a );

    return 0 ;
}
```

11. In the following program how will you print 50 using p?

```
#include<stdio.h>

int main( )
{
    int a[ ] = { 10, 20, 30, 40, 50 } ;

    char *p ;

    p = ( char* ) a ;

    return 0 ;
}
```

12. Where can one think of using pointers?

13. In the following program add a statement in the function fun() such that address of a gets stored in j.

```
#include<stdio.h>

int main( )
{
    int *j ;
    void fun ( int** );
    fun ( & ) ;
    return 0 ;
}

void fun ( int ** k )
{
    int a = 10 ;
    /* add statement here */
}
```

14. How will you declare an array of three function pointers where each function receives two ints and returns a float?

15. Will the following program report an error on compilation? [Yes/No]

```
#include<stdio.h>

int main( )
{
    float i = 10, *j ;
    void * k ;
    k = &i ;
    j = k ;
    printf( "%f\n" , * j ) ;
    return 0 ;
}
```

16. Will the following program compile?

```
#include<stdio.h>

int main( )
```

```

{
    int a = 10, *j ;
    void *k ;
    j = k = &a ;
    j++ ;
    k++ ;
    printf( "%u %u\n" , j, k ) ;
    return 0 ;
}

```

17. Which will be the output of the following program?

```

#include<stdio.h>

int main ( )
{
    printf( "%c\n", 7[ "sundaram" ] ) ;
    return 0 ;
}

```

18. Which of the following is the correct output for the program given below?

```

#include<stdio.h>

int main( )
{
    char *p ;
    p = "hello" ;
    printf( " %s\n", *&*&p ) ;
    return 0 ;
}

```

A. llo

B. hello

C. ello

D. h

19. Which of the following is the correct output for the program given below?

```

#include<stdio.h>

int main( )
{

```

```

void *vp ;
char ch = 74, *cp = "JACK" ;
int j = 65 ;
vp = &ch ;
printf( "%c", * ( char * ) vp ) ;
vp = &j ;
printf( "%c", * ( int * ) vp ) ;
vp = cp ;
printf( "%s\n", ( char * ) vp + 2 ) ;
return 0 ;
}

```

A. JCK B.J65K C. JAK D. JACK

20. Which of the following is the correct output for the program given below?

```

#include<stdio.h>

int main( )
{
    static char *s[ ] = { "back", "while", "pink", "violet" } ;
    char **ptr[ ] = { s+3, s+2, s+1, s }, ***p ;
    p = ptr ;
    printf( "%s\n", **p+1 ) ;
    return 0 ;
}

```

A. ink B. ack C. ite D. let

21. Which of the following is the correct output for the program given below?

```

#include<string.h>
#include<stdio.h>

int main( )
{
    int i , n ;
    char *x = "Alice" ;

```

```

n= strlen ( x );
for ( i=0; i<=n ; i++ )
{
    printf( "%s", x );
    x++;
}

printf ( "\n" , x );

return 0 ;

}

```

- A. No output B. ecilA C. Alice lice ice ce e D. lice ice ce e

22. Which of the following is the correct output for the program given below, if an integer is 4 bytes long and r begins in memory at address 4000?

```

#include<stdio.h>

int main( )
{
    int ***r, **q, *p, i=8 ;

    p = &i ;

    q = &p ;

    r = &q ;

    printf( "%d %d %d\n", *p, **q, ***r );

    return 0 ;

}

```

- A. 8 8 8
 B. 4000 4002 4004
 C. 4000 4004 4008
 D. 4000 4008 40016

23. Which of the following is the correct output for the program given below?

```

#include<stdio.h>

void fun ( void *p );

int i ;

```

```

int main( )
{
    void *vptr ;
    vptr = &i ;
    fun ( vptr ) ;
    return 0 ;
}

void fun ( void * p )
{
    int **q ;
    q = ( int ** ) &p ;
    printf( "%d\n", **q )
}

```

- A. Error: Cannot convert from void ** to int **
- B. Garbage value
- C. 0
- D. No output

24. Which of the following is the correct output for the program given below?

```

#include<stdio.h>

int main( )
{
    char *str ;
    str = "%d\n" ;
    str++ ;
    str++ ;
    printf( str-2, 300 ) ;
    return 0 ;
}

```

- A. No output
- B. 30
- C. 3
- D. 300

25. Which of the following is the correct output for the program given below?


```
#include<stdio.h>
```

```
int main( )
```

```
{
```

```
    char *str ;
```

```
    str = "%s" ;
```

```
    printf ( str, "k\n" ) ;
```

```
    return 0 ;
```

```
}
```

A. Error

B. No output

C. K

D. %s

26. In the following program add a statement in the function fact() such that the factorial gets stored in j.

```
#Include<stdio.h>
```

```
void fact ( int* );
```

```
int main( )
```

```
{
```

```
    int i = 5,j ;
```

```
    fact ( &i ) ;
```

```
    printf( "%d\n", i ) ;
```

```
    return 0 ;
```

```
}
```

```
void fact ( int *j )
```

```
{
```

```
    static int s = 1 ;
```

```
    if ( *j != 0 )
```

```
    {
```

```
        s= s * *j ;
```

```
        *j = *j-1 ;
```

```
        fact ( j ) ;
```

```
        /* add statement here */
```

```
    }
```

```
}
```

27. Which of the following is the correct output for the program given below?

```
#include<stdio.h>

int main( )
{
    int i, *j, k;
    i= 3 ;
    j= &i ;
    printf( "%d\n", i**j*i+*j );
    return 0 ;
}
```

- A. 30 B. 27 C. 9 D. 3

28. Which of the following is the correct output for the program given below?

```
#include<stdio.h>

void change ( int* , int ) ;

int main( )
{
    int i, a[ ] = { 2, 4, 6, 8, 10 } ;
    change ( a, 5 ) ;
    for ( i=0 ; i<=4 ; i++ )
        printf( "%d," , a[i] ) ;
    printf ( "\n" ) ;
    return 0 ;
}

void change ( int *b, int n )
{
    int i;
    for ( i=0 ; i<=n ; i++ )
        * ( b+1 ) = * ( b+i ) + 5 ;
}
```

- A. 7, 9, 11, 13, 15

B. 2, 4, 6, 8, 10

C. 2 4 6 8 10

D. 3, 1, -1, -3, -5

29. Which of the following is the correct output for the program given below?

```
#include<stdio.h>

int * check ( static int, static int );

int main( )
{
    int * c;

    c = check ( 10,20 );

    printf( "%d\n", *c );

    return 0 ;
}

int * check ( static int i , static int j )
{
    int *p, *q ;

    p = &i ;
    q = &j ;

    if( i >= 45 )
        return ( p );

    else
        return ( q );
}
```

A. 10

B. 20

C. Error: 'Non portable pointer conversion'

D. Error: 'Cannot use static for function parameters'

30. Which of the following is the correct output for the program given below?

```
#include<stdio.h>

int main( )
```

```

{
    int x = 30, *y, *z ;
    y = &x ; /* suppose address of x is 500 and integer is 4 byte wide */
    z = y ;
    *y++ = *z++ ;
    x++ ;
    printf( "x = %d y = %d z = %dn", x, y, z ) ;
    return 0 ;
}

```

- A. 31 502 502
- B. 31 500 500
- C. 31 498 498
- D. 31 504 504

31. Which of the following error will be reported on compiling the program given below?

```

#include<stdio.h>

int main ( )
{
    int a[ ] = { 10, 20, 30, 40, 50 } ;
    int j ;
    for ( j = 0 ; j<5 ; j++ )
    {
        printf( "%d\n", *a ) ;
        a++ ;
    }
    return 0 ;
}

```

- A. Error: 'Declaration syntax'
- B. Error: 'Expression syntax'
- C. Error: 'Lvalue required'
- D. Error: 'Rvalue required'

32. Which of the following statement is correct about k used in the statement given below?

Char ****k;

- A. k is pointer to a pointer to a pointer to a char.
- B. k is pointer to a pointer to a pointer to a pointer to a char.
- C. k is pointer to a char pointer.
- D. k is pointer to a pointer to a char.

33. Which of the following is the correct output for the program given below?

```
#include<stdio.h>

int main( )
{
    char str[ ] = "peace" ;
    char *s = str ;
    printf( "%s\n", s++ +3 ) ;
    return 0 ;
}
```

What will be the output f the above code?

- A. peace B. eace C. ace D. ce

34. Which of the following is the correct output for the program given below?

```
#include<stdio.h>

int main( )
{
    char str1[ ] = "Bombay" ;
    char str2[ ] = "Pune" ;
    char *s1 = str1, *s2 = str2 ;
    while ( *s1++ = *s2++ ) ;
    printf( "%s", str1 ) ;
    printf( "\n" ) ;
    return 0 ;
}
```

- A. Bombay B. Pune C. Bombay D. (null)

35. Which of the following statements correctly declare a function that receives a pointer to a pointer to a pointer to a float and returns a pointer to a pointer to a float?

- A. float ** fun (float ***) ;
- B. float * fun (float **);
- C. float fun (float ***) ;
- D. float ***** fun (float ***) ;

36. Which statement will you add to the following program to ensure that the program outputs “ mumbadevi ” on execution?

```
#include<stdio.h>

int main( )
{
    char s[ ] = “mumbadevi”
    char t[25] ;
    char *ps, *pt ;
    ps = s ;
    pt = t ;
    while ( *ps )
        *pt++ = *ps++ ;
    /* add suitable statement here */
    printf( “%s\n” , t ) ;
    return 0 ;
}
```

37. Which of the following statements is correct about the program given below?

```
#Include<stdio.h>

int main( )
{
    int arr[3][3] = { 1, 2, 3, 4 } ;
    printf( “%d\n”, * ( * ( * ( arr ) ) ) ) ;
    return 0 ;
}
```

- A. It will output a garbage value.
- B. It will output a value 1.
- C. It will output a value 3.
- D. It will report an error : 'Invalid indirection'.

38. If a variable is a pointer to a structure, then which of the following operator is used to access data members of the structure through the pointer variable?

- A. '.'
- B. '&'
- C. '*'
- D. '->'

39. Which of the following is the correct output for the program given below?

```
#include<stdio.h>
```

```
int main ( )
```

```
{
```

```
    char str[20] = "Hello" ;
```

```
    char * const p = str ;
```

```
    *p = 'M' ;
```

```
    printf( "%s\n" , str ) ;
```

```
    return 0 ;
```

```
}
```

- A. Mello
- B. Hello
- C. HMello
- D. Mhello

40. The operator used to value at address stores in a pointer variable is

- A. *
- B. &
- C. &&
- D. ||

41. A pointer is a

- A. A keyword used to create a variables.
- B. A variable that stores address of an instruction.
- C. A variable that stores address of another variable.
- D. All of the above.

42. Which of the following statement is true about the program given below?

```
#include<stdio.h>
```

```
int main( )
```

```
{
```

```
    float a = 3.14 ;
```

```

char *j ;

j = ( char * ) &a ;

printf( "%d\n" , *j ) ;

return 0 ;

}

```

- a.
- A. It will print ASCII value of the binary number present in the first byte of the float variable
 - B. It will print character equivalent of the binary number present in the first byte of the float variable
 - C. It will print 3.
 - D. It will print a garbage value.

43. Which of the following statement is correct about the program given below?

```
#include<stdio.h>
```

```

int main( )
{
    int i = 10 ;
    int *j = &i ;
    return 0 ;
}

```

- A. j and I are pointers to an int.
- B. i is a pointer to an int and stores address of j.
- C. j is a pointer to an int and stores address of i.
- D. j is a pointer to a pointer to an int and stores address of i.

44. Which of the following is the correct output for the given below?

```
#include<stdio.h>
```

```
int power( int ** )
```

```
int main ( )
```

```

{
    int a = 5, **aa /* suppose the address of the variable as is 1000*/
    aa = &a;
    a = power(&aa);
}

```



```
printf(““%d\n”,a);
return 0;
}
```

```
int power(int **ptr)
{
    int b;
    b = **ptr**ptr;
    return(b);
}
```

A. 5 B. 25 C. 125 D. Garbage value

45. Is the null pointer same as an uninitialized pointer? [Yes/ No]

46. In which header file is the NULL macro defined.

47. Is there any difference between the following two statements?

```
Char *p = 0;
```

```
char *t = NULL;
```

48. What is (void *) 0 ?

49. Is this a correct way null pointer assignment?

```
Int i=0;
```

```
char *q = (char *)i;
```

50. What is a null pointer?

51. What is the difference between null pointer, NULL macro, the ASCII NULL character and a null string?

52. What will be the output of the following program, if the size of the pointer is considered as 4 bytes?

```
#include<stdio.h>
```

```
int main()
```

```
{
```

```
printf(““%d%d\n”,sizeof(NULL), sizeof(“”));
```

```
return 0;
```

```
}
```

53. Point out the error, if any in the following program

```
#include<stdio.h>
```

```
int main()
```

```
{
```

```
int *x;
```

```
*x = 100;
```

```
return 0;
```

```
}
```

54. Point out the error , if any, in the following code?

```
#include<stdio.h>
```

```
int main()
```

```
{
```

```
*p = (char *) malloc (100);
```

```
*p = y;
```

```
}
```

55. How many bytes are occupied by the near, far and huge pointers?

56. Are the 3 declarations char **apple, char *apple[] and char apple[][] same ? [Yes/No]

57. Will the following program give any warning on compilation?

```
#include<stdio.h>
```

```
void main()
```

```
{
```

```
int *p1, i=25;
```

```
void *p2;
```

```
p1 = &i;
```

```
p2 = &i;
```

```
p1 = p2;
```

```
p2 = p1;
```

```
}
```

58. Since size of pointer as well as size of standard data types varies from one compiler to another , how should I write programs that work similarly with all compilers ?

59. What is the output of the following program.

```
#include<stdio.h>

int main(void)
{
    int a=5,*ptr;

    ptr=&a;

    printf("Input a number : ");

    scanf("%d",ptr); /*Suppose the input number is 16*/

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

    return 0;
}
```

60. What is the output of the following program.

```
#include<stdio.h>

int main(void)
{
    int *ptr;

    printf("Enter a number : ");

    scanf("%d",ptr);

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

    return 0;
}
```

61. What is the output of the following program.

```
#include<stdio.h>
```

```

int main(void)
{
    int arr[5],i;
    for(i=0; i<5; i++)
        printf("%p ",arr+i);
    printf("\nEnter 5 numbers : ");
    for(i=0; i<5; i++)
        scanf("%d",arr+i);
    for(i=0; i<5; i++)
        printf("%d ",*(arr+i));
    return 0;
}

```

62. What is the output of the following program..

```

#include<stdio.h>

int main(void)
{
    int i,arr[5]={25,30,35,40,45},*p;
    p=arr;
    for(i=0; i<5; i++)
        printf("%d\t%d\t",*(p+i),p[i]);
    return 0;
}

```

63. What is the output of the following program.

```

#include<stdio.h>

int main(void)
{
    int i,arr[5]= {25,30,35,40,45},*p;
    p=&arr[4];

```

```

        for(i=0; i<5; i++)
            printf("%d\t%d\t", *(p-i),p[-i]);
    return 0;
}

```

64. What is the output of the following program.

```

#include<stdio.h>

int main(void)
{
    int i,arr[5] = {25,30,35,40,55},*p;
    for(i=0; i<5; i++)
    {
        printf("%d ",*arr);
        arr++;
    }
    return 0;
}

```

65. What is the output of the following program.

```

#include<stdio.h>

int main(void)
{
    int i,arr[5]={25,30,35,40,45},*p=arr;
    for(i=0; i<5; i++)
    {
        (*p)++;
        printf("%d ",*p);
        p++;
    }
    return 0;
}

```

```
}
```

66. What is the output of the following program.

```
#include<stdio.h>

int main(void)
{
    int i,arr[5]={25,40,55,70,85},*p=arr;
    for(i=0; i<5; i++)
        printf("%d ",*p++);
    printf("\n");

    for(i=0; i<5; i++)
        printf("%d ",*--p);
    printf("\n");
    return 0;
}
```

67. What is the output of the following program.

```
#include<stdio.h>

int main(void)
{
    int i,arr[5]={25,40,55,70,85},*p=arr;
    for(i=0; i<8; i++)
        printf("%d ",++*p);
    printf("\n");
    for(i=0; i<7; i++)
        printf("%d ",(*p)++);
    printf("\n");
    return 0;
}
```

68. What is the output of the following program.

```
#include<stdio.h>

int main(void)
{
    int arr[10]={25,30,35,40,55,60,65,70,85,90},*p;

    for(p=&arr[0]; p<arr+10; p++)
        printf("%d ",*p);

    return 0;
}
```

69. What is the output of the following program.

```
#include<stdio.h>

int main(void)
{
    int arr[10]= {25,30,35,40,55,60,65,70,85,90},*p;

    for(p=arr+2; p<arr+8; p=p+2)
        printf("%d ",*p);

    return 0;
}
```

70. What is the output of the following program.

```
#include<stdio.h>

int main(void)
{
    int i,arr[10]={25,30,35,40,55,60,65,70,85,90};

    int *p=arr+9;

    for(i=0; i<10; i++)
        printf("%d ",*p--);

    return 0;
}
```

```
}
```

71. What is the output of the following program.

```
#include<stdio.h>

int main(void)
{
    int arr[10]={ 25,30,35,40,55,60,65,70,85,90},*p;

    for(p=arr+9; p>=arr; p--)
        printf("%d  ",*p);

    return 0;
}
```

72. What is the output of the following program.

```
#include<stdio.h>

int main(void)
{
    int arr[4]={ 10,20,30,40};
    int x=100, *ptr=arr;

    printf("%p      %d      %d\n",ptr,*ptr,x);
    x=*ptr++;
    printf("%p      %d      %d\n",ptr,*ptr,x);
    x=*++ptr;
    printf("%p      %d      %d\n",ptr,*ptr,x);
    x=++*ptr;
    printf("%p      %d      %d\n",ptr,*ptr,x);
    x=(*ptr)++;
    printf("%p      %d      %d\n",ptr,*ptr,x);

    return 0;
}
```


73. What is the output of the following program.

```
#include<stdio.h>

int main(void)
{
    int x,arr[8]={ 11,22,33,44,55,66,77,88};
    x=(arr+2)[3];
    printf("%d\n",x);
    return 0;
}
```

74. What is the output of the following program.

```
#include<stdio.h>

int main(void)
{
    int arr[8]={ 11,22,33,44,55,66,77,88};
    int *p,*q;
    q=arr/2;
    p=q*2;
    printf("%d %d",*p,*q);
    return 0;
}
```

75. What is the output of the following program.

```
#include<stdio.h>

int main(void)
{
    int arr[6]={ 1,2,3,4,5,6};
    int *p=arr;
    printf("Size of p=%u,Size of arr=%u\n",sizeof(p),sizeof(arr));
    return 0;
}
```

```
}
```

76. What is the output of the following program.

```
#include<stdio.h>

int main(void)
{
    float a=5,*p,**pp;

    p=&a;
    pp=&p;

    printf("a=%f, p=%p, pp=%p\n",a,p,pp);

    a=a+1;

    p=p+1;

    pp=pp+1;

    printf("a=%f, p=%p, pp=%p\n",a,p,pp);

    return 0;
}
```

77. What is the output of the following program.

```
#include<stdio.h>

int a=5,b=10;

void change1(int *p)
{ p=&a; }

void change2(int **pp)
{ *pp=&b; }

int main(void)
{
    int x=20,*ptr=&x;

    printf("%d ",*ptr);

    change1(ptr);
```

```

        printf("%d ",*ptr);

        change2(&ptr);

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

        return 0;

}

```

78. What is the output of the following program.

```

#include<stdio.h>

void func(int x,int *y);

int main(void)
{
    int a=2,b=6;

    func(a,&b);

    printf("a=%d, b=%d\n",a,b);

    return 0;
}

void func(int x,int *y)
{
    int temp;

    temp=x;

    x=*y;

    *y=temp;
}

```

79. What is the output of the following program.

```

#include<stdio.h>

void func(int **pp);

int main(void)
{
    int *ptr;

```

```

        func(&ptr);

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

        return 0;
}

void func(int **pp)
{
    int num=10;

    *pp=&num;
}

```

80. What is the output of the following program.

```

#include<stdio.h>

void func(int x,int y);

int main(void)
{
    int a=5,b=8;

    func(a,b);

    printf("a=%d,b=%d\n",a,b);

    return 0;
}

void func(int x,int y)
{
    int temp;

    temp=*&x, *&x)=*&y, *&y)=temp;
}

```

81. What is the output of the following program.

```

#include<stdio.h>

void func1(int *ptr);

void func2(int **pptr);

```

```

int main(void)
{
    int arr[5]={1,2,3,4,5};
    int *p=arr;
    printf("p = %p,\t",p);
    func1( p);
    printf("p = %p,\t",p);
    func2(&p);
    printf("p = %p\n",p);
    return 0;
}

void func1(int *ptr)
{
    ptr++;
}

void func2(int **pptr)
{
    (*pptr)++;
}

```

82. What is the output of the following program.

```

#include<stdio.h>

void func(int a[10]);

int main(void)
{
    int arr[10];
    func(arr);
    return 0;
}

```

```

void func(int a[10])
{
    int b[10],x=5;

    a=&x;

    b=&x;
}

```

83. What is the output of the following program.

```

#include<stdio.h>

int main(void)
{
    int arr[3][4];

    printf("%p\t",arr);
    printf("%p\t",arr[0]);
    printf("%p\n",&arr[0][0]);
    printf("%u\t",sizeof(arr));
    printf("%u\t",sizeof(arr[0]));
    printf("%u\n",sizeof(arr[0][0]));

    return 0;
}

```

84. What is the output of the following program.

```

#include<stdio.h>

int main(void)
{
    int arr[3][4][5];

    printf("%p\t",arr);
    printf("%p\t",arr[0]);
    printf("%p\t",arr[0][0]);
    printf("%p\n",&arr[0][0][0]);
}

```

```

        printf("%u\t",sizeof(arr));

        printf("%u\t",sizeof(arr[0]));

        printf("%u\t",sizeof(arr[0][0]));

        printf("%u\n",sizeof(arr[0][0][0]));

        return 0;

}

```

85. What is the output of the following program.

```

#include<stdio.h>

void func(int a[]);

int main(void)
{
    int arr[10] = {1,2,3,4,5,6,7,8,9,10};

    func(arr+3);

    return 0;
}

void func(int a[])
{
    int i;

    for(i=0; a[i]!=8; i++)

        printf("%d ",a[i]);
}

```

86. What is the output of the following program.

```

#include<stdio.h>

void swap(int *b,int *c);

int main(void)
{
    int i,j;

    int arr[10]={3,2,4,1,5,9,8,10,7,6};

```

```

    for(i=0; i<10; i++)
        for(j=0; j<10-i-1; j++)
            if(*(arr+j) > *(arr+j+1))
                swap(arr+j,arr+j+1);
    for(i=0; i<10; i++)
        printf("%d\t",arr[i]);
    printf("\n");
    return 0;
}

void swap(int *b,int *c)
{
    int temp;
    temp=*b, *b=*c, *c=temp;
}

```

87. What is the output of the following program.

```

#include<stdio.h>

int main(void)
{
    int i,arr[3][4] = {{10,11,12,13},{20,21,22,23},{30,31,32,33}};
    int *pa[3];
    int (*p)[4];
    p=arr;
    for(i=0; i<3; i++)
        pa[i]=arr[i];
    printf("%d %d %d\n",pa[0][0],pa[0][1],pa[2][3]);
    printf("%d %d %d\n",p[0][0],p[0][1],p[2][3]);
    return 0;
}

```


88. What is the output of the following program.

```
#include<stdio.h>

#include<stdlib.h>

int *func1(void);

int *func2(void);

int main(void)
{
    int *ptr1,*ptr2;

    ptr1=func1();

    ptr2=func2();

    printf("%d %d\n",*ptr1,*ptr2);

    free(ptr2);

    return 0;
}

int *func1(void)
{
    int a=8,*p=&a;

    return p;
}

int *func2(void)
{
    int *p;

    p=(int *)malloc(sizeof(int));

    *p=9;

    return p;
}
```

89. What is the output of the following program.

```
#include<stdio.h>

int main(void)
```

```

{
    int i,arr[3][4]={ { 10,11,12,13},{ 20,21,22,23},{ 30,31,32,33} };
    int *p=&arr[0][0];
    for(i=0; i<12; i++)
        printf("%d ",p[i]);
    printf("\n");
    return 0;
}

```

90. What is the output of the following program.

```

#include<stdio.h>

int main(void)
{
    int a[2][3];
    a[1][2]=9;
    printf("%d\n",a[1,2]);
    return 0;
}

```

91. What is the output of the following program.

```

#include<stdio.h>

int main(void)
{
    int a[5]={1},b[5]={1};
    if(a==b)
        printf("Same\n");
    else
        printf("Different\n");
    return 0;
}

```

