ARRAYS

1.What is the value of *(arr + 2) when arr[] = {10, 20, 30, 40, 50}?

```
2.#include<stdio.h>
int main()
{
int x[]={7,8,9,10};
int y[4]={[1]=*(x+1),*(x+3)};
printf("%d %d",y[2],y[1]);
}
```

```
3.#include<stdio.h>
int main()
{
int a[]={1,2,3,4,5},i;
for(i=1;i<5;i+=3)
printf("%d ",a[--i]);
}
```

4.Which of the following statements are true about arrays?

a) Arrays can store elements of different datatype.
b) Arrays can store elements of same datatype
c) An array name is pointer to first element.
d) Array size must be known at run time.

```
5.#include<stdio.h>
int main()
{
int arr[] = {1, 2, 3, 4};
int *ptr = arr;
printf(“%d”, *(ptr++));
printf(“%d”,*(++ptr));
}
```

6.What happens when array is passed to function?

a) A copy of the array is passed
b) A pointer to the array is passed
c) The entire array is passed by value
d) The function cannot accept arrays.

```
7.#include<stdio.h>
int main()
{
int ary[]={55,57,59};
short int *p=ary;
for(int i=0;i<5;i++)
        printf("%d ",p[i]);
}
```

```
8.#include<stdio.h>
int main()
{
        int arr[8]={41,51,61,71,81,91,21,31};
        int x=(arr+2)[3];
        printf("%d ",x);
}
```

```
9.#include<stdio.h>
void fun(int [],int);
int main()
{
int a[]={3,4,2,6,7};
fun(a+2,5);
for(int i=0;i<5;i++)
        printf("%d ",a[i]);
}
void fun(int a[],int n)
{
a[0]=8;
a[2]=10;
}
```

```
10.#include<stdio.h>
int main()
{
int x[]={017,023,034};
int a,b,i=1;
++x[i++];
x[i--]--;
printf("%d %d %d",x[0],x[1],x[2]);
}
```

```
11.#include<stdio.h>
int main()
{
int y[]={56,67,89},i;
for(i=0;i<3;i++)
        printf("%p ",y[i]);
}
```

```
12.#include<stdio.h>
int main()
{
        short int arr[6]={1,2,3,4,5,6};
        short int *p=arr;
        printf("%d %d",sizeof(arr),sizeof(p));
}
```

```
13.#include<stdio.h>
int main()
{
        int i=0,sum=0,arr[6]={2,3,4,5,0,7};
        while(arr[i])
        {
                sum+=arr[i];
                i++;
        }
        printf("sum=%d",sum);
}
```

```
14.#include<stdio.h>
int main()
{
        int a[5]={2};
        int b[5]={2};
        if(a[1]==b[3])
                printf("Same\n");
        else
                printf("Different\n");
}
```

```
15.#include<stdio.h>
int main()
{
char s[]={200,300,400};
char *p=s;
printf("%d\n",*p++);
printf("%d\n",*p++);
}
```

```
16.#include <stdio.h>
int main()
{
const int a[4] = {11,22,33,44};
int *p;
p = a + 3;
*p = 5;
printf("%d\n", a[3]);
}
```

```
17.#include<stdio.h>
int main()
{
        int p[5]={1,2,3,4,5};
        short int *ptr=p+1;
        printf("%d %d",ptr[-2],ptr[4]);
}
```

```
18.#include<stdio.h>
void main()
{
       int a[5]={1,2,3,4,5};
        char *p=a+1;
        ++p;
        printf("%d \n",(*(&p))[5]);
}
```

```
19.#include<stdio.h>
int main()
{
int arr[5] = {11,22,34,45,67};
int *ptr = &arr + 1;
printf("%d %d\n", *(arr + 3), *(ptr - 3));
return 0;
}
```

```
20.#include<stdio.h>
void main()
{
        short int a[5]={1,2,3,4,5};
        int *p=a;
        *p=258;
        printf("%d  %d\n",a[0],a[1]);
}
```

```
21.#include<stdio.h>
void fun(int *,int);
int main()
{
int a[]={13,4,5,45,56};
fun(a,5);
for(int i=0;i<5;i++)
printf("%d ",a[i]);
}
void fun(int *p,int n)
{
*p=*++p;
p++;
p[0]=12;
}
```

```
22.#include<stdio.h>
int main()
{
char x[]={55,49,57,52,56};
int *p=x;
printf("%s",p);
}
```

```
23.#include<stdio.h>
void func(int arr[]);
int main()
{
        int arr[5]={5,10,15,20,25};
        func(arr);
}
void func(int arr[])
{
        int i=5,sum=0;
        while(i>2)
                sum+=arr[--i];
        printf("sum=%d\n",sum);
}
```

```
24.#include<stdio.h>
int main()
{
        int p[5]={1,2,3,4,5};
        char *ptr=p+2;
        printf("%d %d",ptr[1],ptr[8]);
}
```

```
25.#include<stdio.h>
void main()
{
        int a[5]={10,20,30,40,50};
        short int *p=a+1;
        char *q=a;
        ++p;
        p[-3]=33;
        printf("%d",*q);
}
```

```
26.#include<stdio.h>
void main()
{
        int a[5]={48,57,56};
        int *p=a;
        *p|=49<<8|50<<16;
        printf("%s \n",a);
}
```

```
27.#include<stdio.h>
int main()
{
int arr[] = {1, 2, 3, 4, 5};
int* ptr = &arr[0] + 2;
ptr--;
printf(“%d”,*ptr);
}
```

```
28.#include<stdio.h>
int main()
{
int x[]={10,20,30,40,50,60,70,80},i;
for(i=7;i>=0;i--)
printf("%d ",--x[--i]);
}
```

29.Write a program to move zeroes to the end.

```
Ex:   I/P   int a[]={11,0,45,32,0,5,0,23}
       O/P      a[]={11,45,32,5,23,0,0,0}
```

```
30.#include<stdio.h>
int main()
{
        int a[]={11,6,8,9,12};
        int *q=a+1;
        q+=2;
        printf("%d",*(q+1));
}
```

```
31.#include<stdio.h>
int main()
{
        int arr[8]={10,20,30,40,50,60,70,80};
        int *p,*q;
        p=arr/2;
        q=q*2;
        printf("%d %d",p,q);
}
```

```
32.#include<stdio.h>
int main()
{
int a[]={10,20,30,40,50};
int *p=&a[2];
printf("%d %d",p[-1],p[-2]);
}
```

```
33.#include<stdio.h>
int main()
{
int s[]={260,300,518};
char *p=s;
printf("%d\n",*p++);
printf("%d\n",*p++);
p+=2;
printf("%d\n",*p);
}
```

```
34.#include<stdio.h>
int main()
{
int a[]={10,20,30,40,50};
short int  *p=a+2;
*(a+1)=*(p+2);
*(a+2)=*(p+4);
printf("%d %d",a[1],a[2]);
}
```

35.How to find the size of array without using sizeof operator.

```
36.#include <stdio.h>
int main() {
    int xy[]={2,3,9,7,8,5};
    printf("%d ",xy);
    printf("%d ",&xy+1);
}
```

/* Assume the base address is 0x1000 */

```
37.#include <stdio.h>
int main()
{
        char a[]={'w','e','l','c','o','m','e'};
        int *p=a;
        p=p+1;
        printf("%s",p);
}
```

```
38.#include <stdio.h>
int main()
{
        int n[]={6,2,8,9,0,10};
        n[3]=(n+1)[0];
        n[2]=(-1)[n+4];
        printf("%d %d",n[2],n[3]);
}
```

```
39.#include <stdio.h>
int main()
{
        char a[]={'a','b','c','d','e'};
        char *p=a;
        printf("%c ",*p++^32);
        printf("%c ",*++p);
        printf("%c ",--*++p);
}
```

```
40.#include <stdio.h>
int main()
{
        int n[]={6,2,8,9,0,10};
        int *p=&n[1];
        int *q=n+5;
        printf("%d",q-p);
}
```

```
41.#include<stdio.h>
int main()
```

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

```
42.#include <stdio.h>
int main()
{
        int a[]={6,2,7,9,0,5};
        short int *p=a+0;
        short int *q=a+4;
        *q=q-p;
        printf("%d",a[4]);
}
```

```
43.#include<stdio.h>
int main()
{
short int a[]={65,66,67,68,69};
char *p=a;
int i;
for(i=1;i<5;i+=2)
p[i]=48+i;
printf("%s",a);
}
```

```
44.#include<stdio.h>
int main()
{
double d[]={56.7,89.7,67.8,45.5,24.6};
printf("%lf",++d[0]);
printf("%lf",d++[3]);
}
```

45.Write a program to Rotate an array of n elements to the right by k steps

Input: [1,2,3,4,5,6,7], k = 4
Output: [4,5,6,7,1,2,3]

```
46.#include<stdio.h>
int main()
{
int p[5] = {11,22,33,44,55};
char *a=&p[0];
short int *b=&p[3];
printf("%d",b-a);
}
```

```
47.#include<stdio.h>
void main()
{
        double a[5]={10,20,30,40,50};
        char *p=a+1;
       short int *q=a+4;
        printf("%lf\n",a[1]);
        printf("%d\n",q-(short int *)p);
        *p=q-(short int *)p;
        printf("%lf",a[1]);
}
```

```
48.#include<stdio.h>
void main()
{
       char a[]={'A','B','C','D','C','D','E','1','2','3','4','5'};
        int *p=a+8;
        p[-1]=0;
        char *q=a;
        printf("%s %s\n",p,q+2);
}
```

```
49.#include<stdio.h>
int main()
{
        int arr[10]={15,20,35,40,55,60,75,80,90,95},*p;
        for(p=arr+2;p<arr+8;p+=2)
        printf("%d ",*p);
}
```

```
50.#include<stdio.h>
int* fun(int *);
int main()
{
int p[]={54,23,98,34,85,76,65,42};
int *a=fun(p);
for(int i=0;i<5;i++)
        printf("%d ",a[i]);
}
int* fun(int *p)
{
p++;
p++;
return p;
}
```