CS & IT ENGINEERING

C-Programming

Array and Pointer

DPP 03 Discussion Notes

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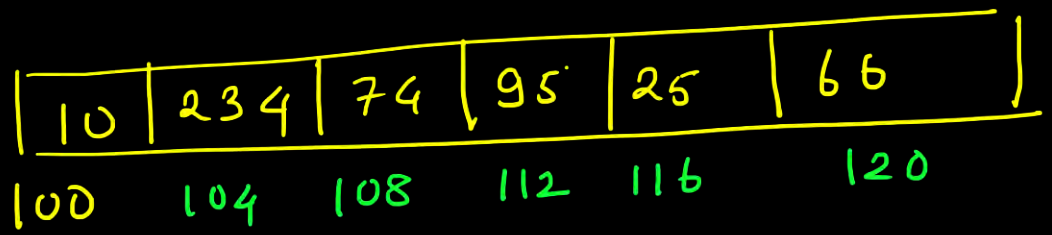
Question

#Q.
```
#include<stdio.h>
int main()
{
    int a[] = {10,234,74,95,25,66 };
    int *b= a+6;
    printf("%d", b[-5]);
    return 0;
}
```
The output of the program is



b = 100+6 = 100+6×4
= 124

b[-5] = *(6-5)
*(124-5)
*(124-5×4)
= *(120) = 234

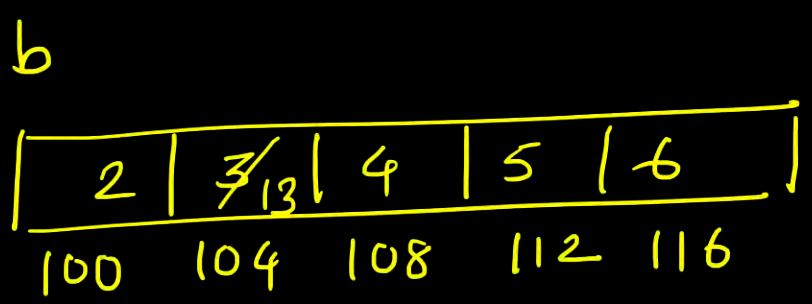
Ans = 234

Question

#Q. Consider the following program

```
#include<stdio.h>
int main()
{
    int i, j, b[] = {2, 3, 4, 5, 6}, *p ;
    p = b ;
    *p++;
    i= (*p)+=10;
    j = *p+=10;
    printf ("%d\t" ,i+j) ;
}
```

The output of the program is _____



p = 100 104

*p++; ← post increment

i = (*p) += 10

i = 3 + 10 = 13

j = *p += 10

j = 13 + 10 = 23

13 + 23 = 36

output is 36

Question

#Q.
```
#include<stdio.h>
int main()
{
   int i , b [] = {21, 13, 43, 25, 60}, *p ;
   p = b ;
   *++p ;
   printf ("%d\t" ,*p) ;
   p += 2 ;
   printf ("%d" , *p);
}
```

b[] = | 21 | 13 | 43 | 25 | 60 |
100 104 108 112 116

p = ~~100~~ 104

*++p; prefix operator

printf → 13

p = 104 + 2 = ~~108~~ 104 + 2×4 = 112

printf → 25

(A) 13, 25 [4]

(B) 21, 25

(C) 43, 60

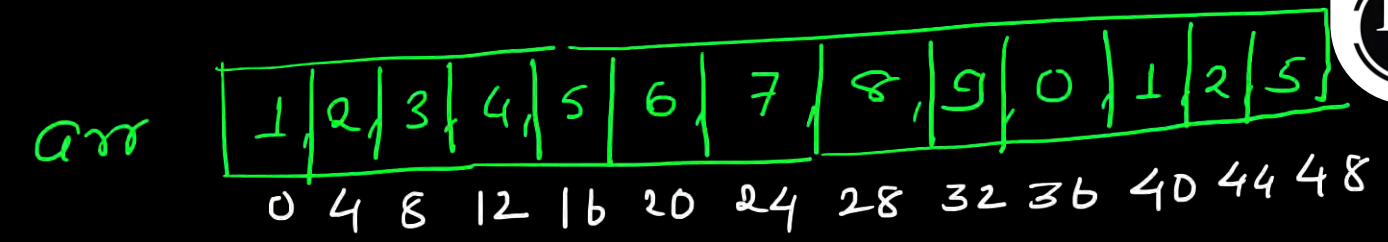
(D) 21, 43

Question

#Q.
```
#include <stdio.h>
int main()
{
    int arr[]={1,2,3,4,5,6,7,8,9,0,1,2,5}, *ptr;
    int x = 12%13-(1<<3);
    ptr = arr + x;
    printf("%d \n", ptr[1]);
    return 0;
}
```

The output of the program is 6

Ans: 6



$x = 12\%13 - (1<<3)$

$= 12 - 8 = 4$

$ptr = arr + 4$

$= 0 + 4 = 16$

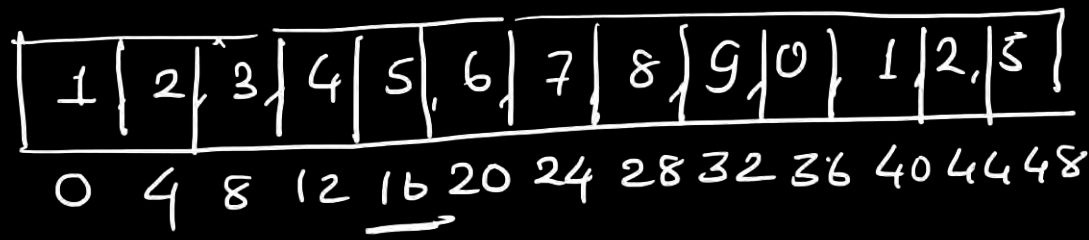
$ptr[1] = *(ptr+1)$

$= *(20)$

$= 6$

Question

#Q.
```
#include<stdio.h>
int main()
{
    int arr[]={1,2,3,4,5,6,7,8,9,0,1,2,5}, *ptr;
    int x = 2%13-(1>>1);
    ptr # +=3;
    printf("%d \n", ptr[1]);
    return 0;
}
```
The output of the program is ____



$x = 2\%_{13} - 0 = 2 - 0$

$ptr = \cancel{ptr}_{arr} + x = 0 + 2 = 8$

$ptr += 3 = 8 + 3 = 8 + 3 * 4 = 20$

printf (20[1] = *(20+1)

= *(24)

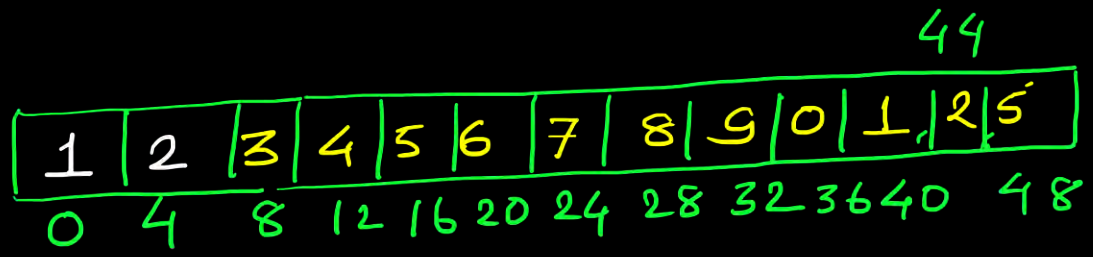
= 7

Answer is 7

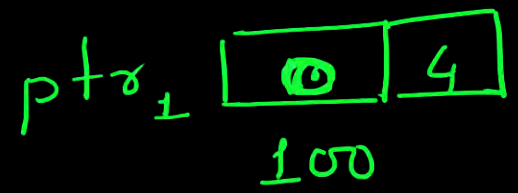
Question

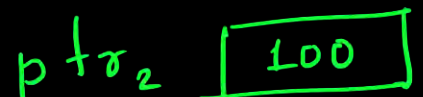
#Q.
```
#include<stdio.h>
int main()
{
    int arr[]={1,2,3,4,5,6,7,8,9,0,1,2,5}, *ptr1, **ptr2;
    ptr1 = arr;
    ptr2 = &ptr1;
    ++*ptr2;
    printf("%d \n", ptr1[1]);
    return 0;
}
```

Output of the program is 3



ptr1 = 0





*ptr = 0

++*ptr = 4

ptr1[1] = *(ptr1+1)

= *(4+1) = *(8)

= 3

Question

#Q. Consider the following program

```
#include<stdio.h>
int main()
{
    int i , b [] = {2, 1, 4, 5, 0}, *p ;
    int **q;
    q = &p;
    p = b ;
    ++*q ;
    printf ("%d\t" ,*p) ;
    ++**q ;
    printf ("%d" , *p);
}
```

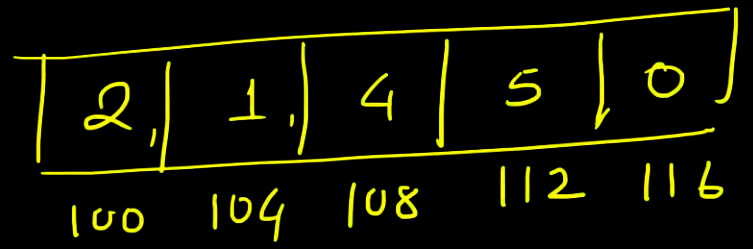
A 2 2

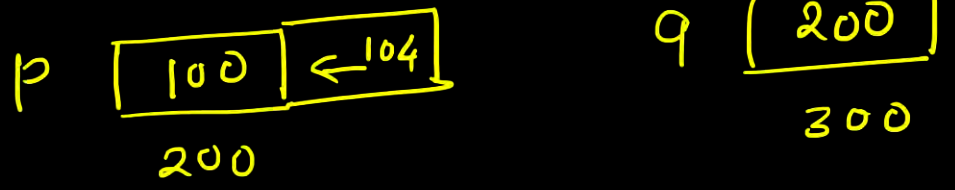
B 1 2

C 1 1

D 2 3

b





++*q = 100 → 104

printf → 1

**q → 1 → 2 (because of ++)

printf 2

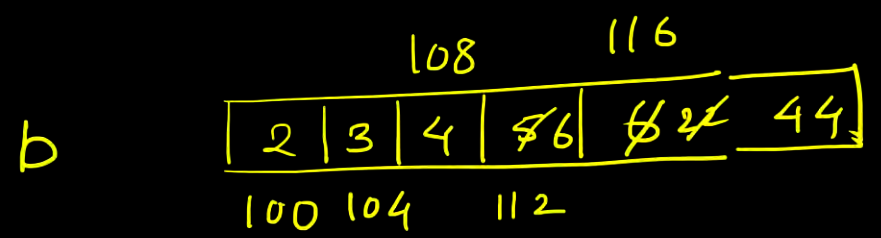
[B]

Question

#Q. Consider the following program

```
#include<stdio.h>
        int main()        {
            int i, j , b[] = {2, 3, 4, 5, 6}, *p, **p1 ;
            p = b+2;
            p1 = &p;
            p[2] = 22;
            p1[0][2]=p1[0][2]+22;
            *p++;
            i= (*p)++;
            j = **p1++;
            printf ("%d\t" ,i+j+b[4]) ;
        }
```

The output of the program is 55



p = 100+2 = | 108 | 112 |
200

p1 = | 200 | 204 |

P[2] = *(108+2) = *(116)

p1[0][2] = *(*(p+0)+2)
= *(*(200)+2)
= *(108+2)
= *116

*p++ = 112

c = (*p)++ = 5

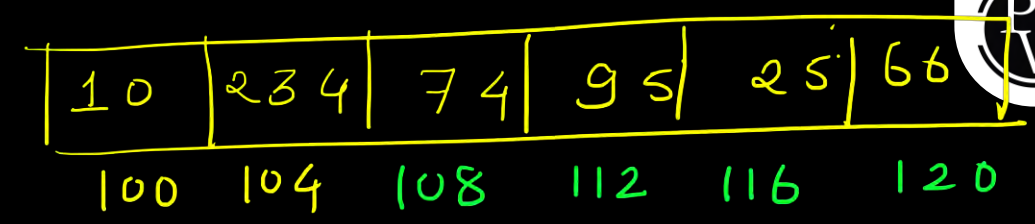
j = 6

printf c+j+b[4]

65+44 = 65 Ans

Question

#Q.
```
#include<stdio.h>
int main()
{
    int a[] = {10,234,74,95,25,66 };
    int x = 2*6/7<<2;
    int *b= a+6;
    printf("%d", b[-x]);
}
```
The output of the program is



x : 2*6/7 << 2

: 12/7 << 2

: 1 << 2 : 4

b : 100 + 6 = ~~106~~

100 + 6×4 = 124

A 234

B 74

C 95

D 25

74 ✓

b[-4] :

*(b-4) : *(124-4)

: *(124-16)

: *(108) : 74

THANK - YOU