

Test on Revision part of C and DMA

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***Required**

Questions

Which header file should be included to use the memory allocation functions like malloc(), calloc(), realloc() and free()? *

[stdlib.h](#)

What is the return type of malloc() or calloc()? *

void



Predict the output *

Assume no compilation error

```
int main()
{
    int i;

    int *j, *m;

    j= (int*)malloc(4 * sizeof(int));
    m = j;

    *j = 15;
    j++;
    *j= 20;
    j++;
    *j = 25;
    j++;
    *j = 30;

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

    for(i = 0; i < 4; i++,m++)
        printf("%d\t", *m);
    printf("\n");
    for(i=0; i < 4; i++, j--)
        printf("%d\t", *j);

    return 0;
}
```

30 15 20 25 31 31 25 20 15



WAP to create a n students dynamically for SE Comps B class, and check whether a student entered in google meet is authorized or not. Note: Program should be syntactically and semantically correct. *

```
typedef struct
{
    int rollno;
    char password[20];

}Student;
```

 DS Revision Test... 

Write equivalent statement using malloc for ptr = calloc(m, n) , note m: no of elements & n: sizeof each element *

```
ptr = malloc (m*n);
```

Which function is used to delete the allocated memory space? *

Write signature of function

```
free();
```

Predict the output and justify the answer *

```
int main()
{
    int arr[] = {0,1,2,3,4};
    int i;

    int *ptr;
    for(ptr = arr+4,i=0; i <= 4; i++)
        printf("%d",ptr[-i]);

    return 0;
}
```

4 3 2 1 0



Dynamic memory allocation takes place from which segment of main memory? *

Heap

Write output and justification. *

```
#include<stdio.h>
#include<stdlib.h>
int main()
{
    double *p;

    p = (double *)malloc(40);
    printf("%d\n", sizeof(p));
    free(p);

    return 0;
}
```

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Write a programming stmt to allocate memory for 5 Sample variables dynamically. *

```
typedef struct
{
    int a;
    char b;
    float c;
}Sample;

malloc (5*sizeof(Sample));
```

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