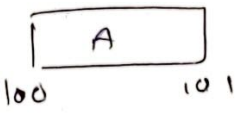
Assignment - 8

02/09/2023

Q1] What is meant by Virtual Address?

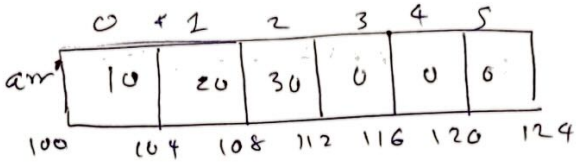
Ans The address generated by '&' operator is the virtual address which was allocated for that variable.

Eg char ch = 'A'; &ch → 100



→ virtual address)

Q2] Predict the output of below code snippet




```
#include <stdio.h>
int main()
{
    int arr[6] = {10,20,30};   // Consider base address of arr as 100
    int no = 2;
```

output

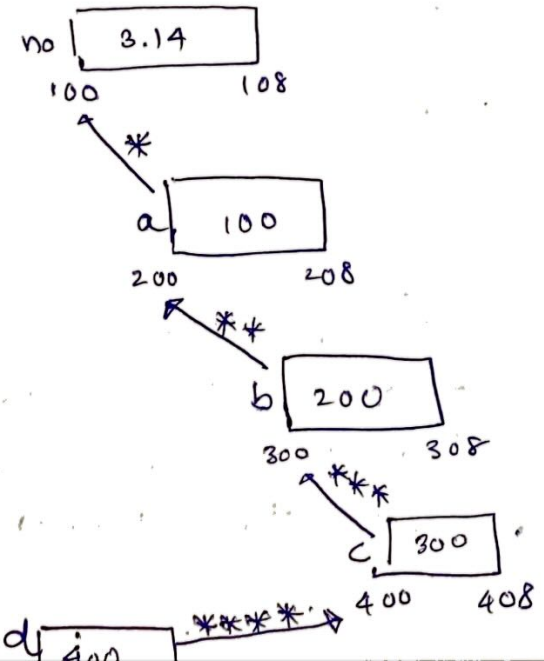
```
printf("%d", arr[0]);          ---> 10
printf("%d", arr[no]);         ---> 30
printf("%d", arr[3-1]);        ---> 30
printf("%d", arr);             ---> 100
printf("%d", arr+1);           ---> 104
printf("%d", (&arr)+1);        ---> 124
printf("%d", arr+3);           ---> 112
printf("%d", &[arr[3]]);       ---> 112
printf("%d", arr[4]);          ---> 0
printf("%d", &(arr[5]));       ---> 0
printf("%d", 2[arr]);          ---> 30
    return 0;
}
```

Q3] What is the use of '&' (Address of) operator?

Ans '&' operator is used to fetch address of any data object. The address generated by '&' operator is the virtual address allocated for that variable.

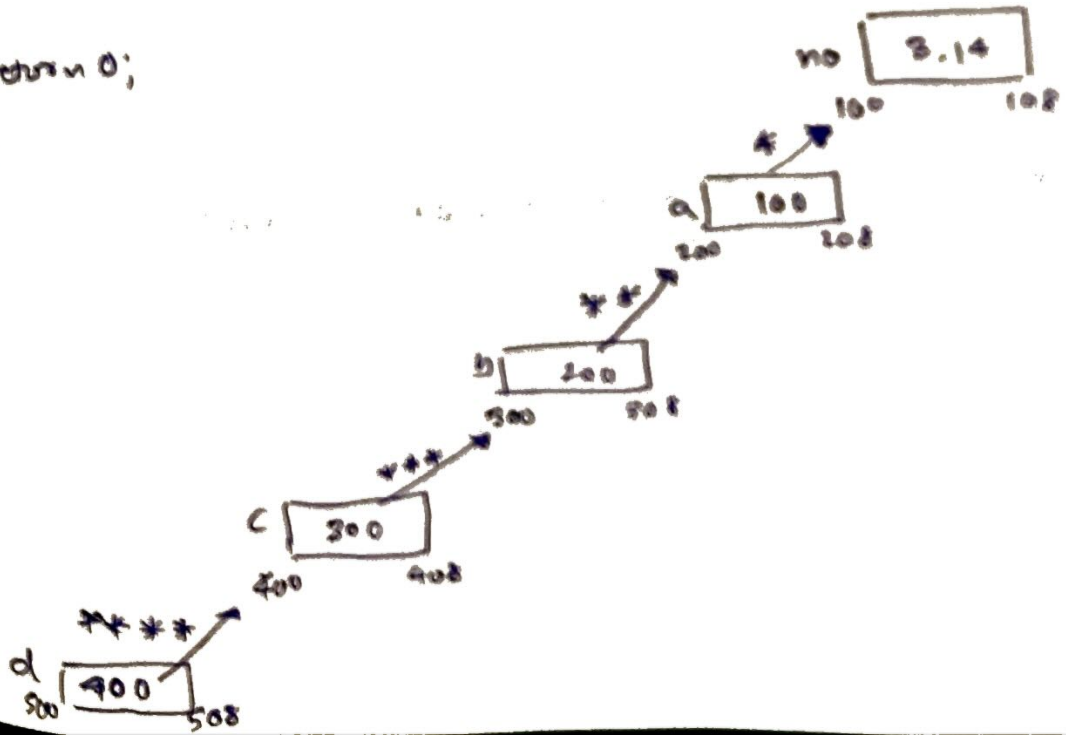
Q4] Predict output

```
#include<stdio.h>
int main()
{
    double no = 3.14 ;          // consider address of no as 100
    double *a = &no;            //    —11—    of a as 200
    double **b = &a;            //    —11—    of b as 300
    double ***c = &b;           //    —11—    of c as 400
    double ****d = &c;          //    —11—    of d as 500

    printf("%d", &no);          100
    printf("%d"; a);            100
    printf("%d", &c);           400
    print("%d", &d);            500
    printf("%d", d);            400
    print("%d", **d);           200
    printf("%d", **c);          100
    printf("%d", *b);           100
```



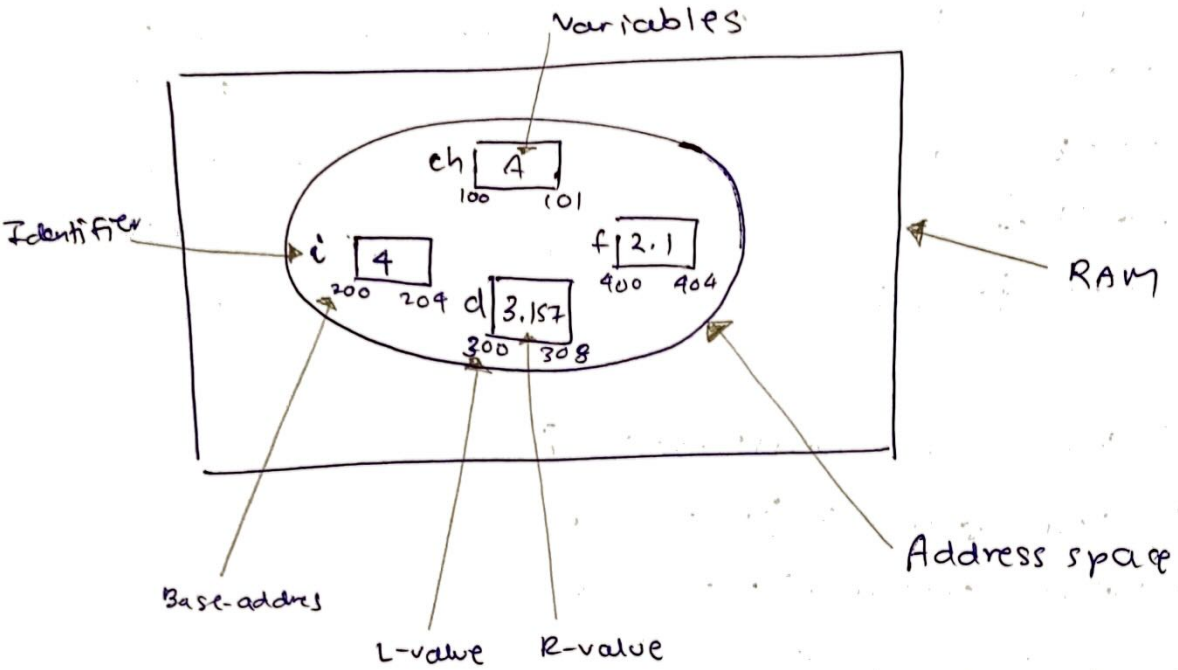
8] Predict the output of the following

```
#include <stdio.h>
int main()
{
    double no = 3.14          // Consider address of no as 100
    double *a = &no;          //    —  ||  —        a as 200
    double **b = &a;          //    —  ||  —        b as 300
    double ***c = &b;         //    —  ||  —        c as 400
    double ****d = &c;        //    —  ||  —        d as 500

    printf("%d", sizeof(no));   ⟶ 8
    printf("%d", sizeof(a));    ⟶ 8
    printf("%d", sizeof(b));    ⟶ 8
    printf("%d", sizeof(c));    ⟶ 8
    printf("%d", sizeof(d));    ⟶ 8
    printf("%d", sizeof(**d));  ⟶ 8
    printf("%d", sizeof(****d)); ⟶ 8
    printf("%d", sizeof(*a));   ⟶ 8
    printf("%d", sizeof(***c)); ⟶ 8
    printf("%d", sizeof(**c));  ⟶ 8

    return 0;
}
```



Q6] What is meant by address space of process?

Ans The range of virtual address that operating system assigns to a program is called address space.

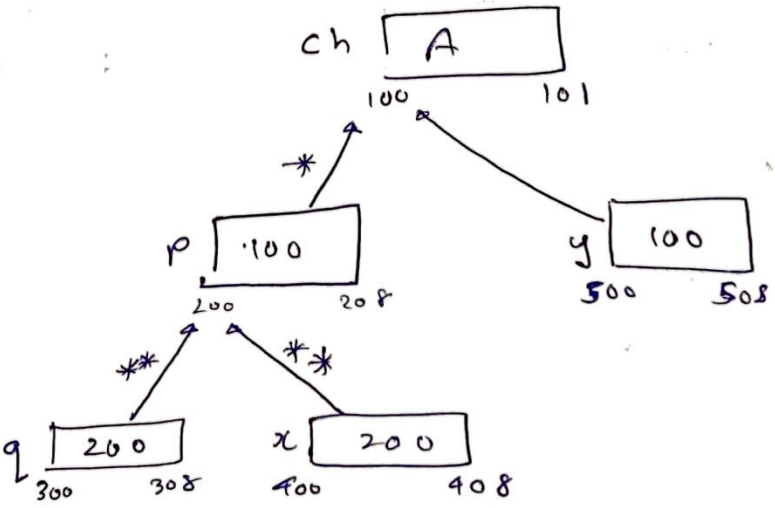


Q7] What is the use of Next instruction member of Stack frame?

Q8] What is meant by linkage of Storage class?

09] Predict output

```
#include <stdio.h>
int main()
{
    char ch = 'A';          // Consider addres of ch as 100
    char *p = &ch;          //      — 11 —      p as 200
    char **q = &p;          //      — 11 —      q as 300
    char **x = &p;          //      — 11 —      x as 400
    char ***y = &ch         //      — 11 —      y as 500

    printf("%d", &ch);      ⟶ 100
    printf("%d", p);        ⟶ 100
    printf("%d", &p);       ⟶ 200
    printf("%d", &q);       ⟶ 300
    printf("%d", d);        ⟶
    printf("%c", **x);      ⟶ A
    printf("%c", **q);      ⟶ A
    printf("%d", *q);       ⟶ 100

    return 0;
}
```



Q10] Predict the output

```
#include<stdio.h>

int main()
{
    int arr[] = { 10,20,30,40,50};  // Consider base address as 100

    int *p = arr;                   // Consider address of p as 200

    printf("%d", arr);   ⟶ 100
    printf("%d", &arr);  ⟶ 100
    printf("%d", p);     ⟶ 100
    printf("%d", *p);    ⟶ 10
    printf("%d", sizeof(arr));    ⟶ 20
    printf("%d", sizeof(arr[0])); ⟶ 4
    printf("%d", sizeof(p));      ⟶ 8
    printf("%d", sizeof(*p));     ⟶ 4
```