Assignment - 3

1. What are the different standardizations of C programming?

ANS:

C Programming language was staderdized by multiple organization. The different Standardizations of c programming languages is as follows:

1. K&R Standard — Kritchi Standard
2. ANSI Standard (C89) — American National Standard Institute
3. ISO Standard (1990) — International organization of standard

2. What is mean by Data structures?

Ans: Data Structure is defined as a way of storing & representing the data in a particular format.

The concept of data structure is language independant

The concept of data structure is applicable for any programming languages.

3. What is Array, explain in detail?

Ans:

Array is concept of derived data type in c, c++ & java. Array is considered as a linear data structure. Array is derived data type which holds multiple homogeneous elements in index format.

There are multiple way in which we can create & initialize the array.

we can also create the array & initialize it by using the concept of member by member initialization we can create the array of constant array. In case of array there is no need to use & operator to fetch the adress. Array is fixed size. According to the dimensions of array there are 2 types of array.

① one dimensional ② Multi dimensional.

Multi dimensional array is called as array of arrays.

4 Differentiate the constant and variable.

Ans: Constant :-

1) The value of constant remains unchanged.
2) Constant declared with a keyword like const (c, c++, Java).
3) constants cannot be reassigned or modified.
4) constants are often allocated memory at compile-time.

Variables :-

1) The value of variables remaines changed during program execution.
2) Variables declared without a keyword.
3) Variables can be reassigned or modified
4) Variables are allocated memory at runtime.

5. Difference between local and Global variables

ANS:

There are 2 types variables that we use in our program.

1. Local variable
2. Global variable

* Local variable is the variable is created inside function body is called "local" variable.

If the variable is local variable then it is only accessible inside the function body.

* Global variable is created outside function body then that variable is called Global variable.

Global variable are accessible for all the function which defined that file.

Use A Global variable is a bad programming practice.

6. Explain the concept of function, explain about the starting point function in C, C++, Java.

Ans:

Every P.L Provides the concept of function in it. Function is defined as a named block which contains the set of instructions, which are related.

when we define function we write the business logic in it.
The starting point function, also known as the entry point or main function.
In C, C++ the starting point function is main()
It's declared as:

```
int main() {
    // code here
    return 0;
}
```

7. Explain about the Programming language paradigms in C, C++, java in detail.

Ans:

In case of Programming language we have to consider the 3 measure P.L Paradigms.

1. Sequence
2. Selection
2. Iteration

1. Sequence:-

If the program contains multiple statement & if we execute that statements in a sequential manner then we consider it as a sequence.

* selection:-

If there are multiple choices then we use select the dezired option based on the requirement then it is, considered as selection.

* Iteration:-

If we won't to execute one or more than one statements multiple times then we use the concept of iteration.

We can use if, if else or switch case in selection.

In c, c++, java there are 3 types of loops for loop is used in concept of iteration. It is generally use when we alredy know the No of iterations that we won't to execute.

While loop is used in concept of iteration. while loop is generally use when we know the condition till which we won't to execute the code.

Do while loop is used in concept of iteration. It's almost same as while loop but it gets executed atleast once respective of the conditions.

8 Write a program to accept a input from user and find whether the no is even or odd, draw the diagramatic layout of the same program

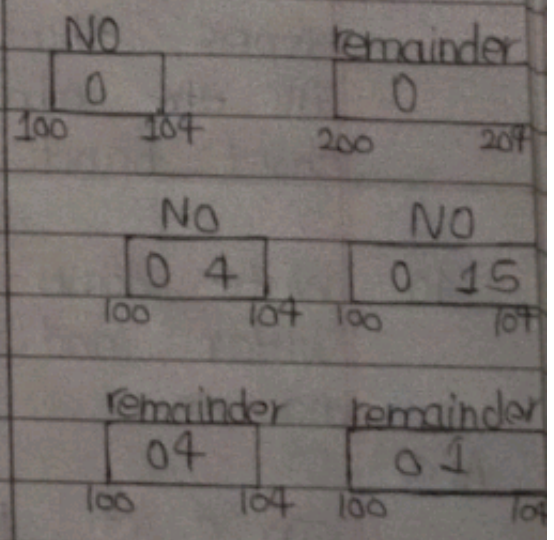
ANS:

```
#include<stdio.h>
int main()
{
    int No=0;
    int remainder=0;
    printf("Enter number:\n");
    scanf("%d", &No);

    remainder = No%2;

    if(remainder==0);
    {
        printf("Number is Even");
    }
    else
    {
        printf("Number is odd");
    }

    return 0;
}
```



0=0=>true 1=0=> false

∴ number is even

number is odd

Diagramatic Layout

9 Write Notes on short hand operators.

ANS:

In C, C++ & Java their are 2 types of operators.

Increment & Decrement operator. which are used to increment the value by 1 as well as decrement value by 1.
In Increment operator there are two types that is Pre-increment & Post increment As well As in Decrement operator there are two types that is Pre-Decrement & Post Decrement
All the above operators are considered as short hand operator.

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10. Write down notes on various loops with its Syntax and examples along with the dry run diagram

Ans:

In C, C++, Java there are three types of loops that is for loop, while loop, dowhile loop

1. For loop is generally use when we alredy know the no of iterations that we won't to execute
The Syntax of for loop is as follows.

```
for ( initialization; condition; increment / decrement)
  { // code to be executed }
```

Example:

```
for (int i=0; i<5; i++) {
    printf("%d\n", i);
}
```

Dry run diagram:

1. i = 0
2. condition: i<5 (true)
3. Print i (0)

1. i=1
2. condition: i<5 (true)
3. print i (1)

1. i=2
2. condition: i<5 (true)
3. print i(2)

1. i= 3
2. condition: i<5 (true)
3. print i(3)

1 i=4
2. condition: i<5 (true)
3. print i(4)

1 i=5
2 condition: i<5 (false)
exit loop

2. While loop is generally use when we know the condition till which we want to execute the code.
The syntax of while loop is as follows:

```
While (condition) {
    // Code to be executed
}
```

Example:

```
While (i<=5)
{
    printf("%d. Jay ganesha ...\n", i);
    i++;
}
```

Dryrun Diagram :-

Iteration 1

Step2 : 1<=5 --> true
Step4 : Jay ganesha ...
Step3 : i++

i
| ~~1~~ 2 |

Iteration 2

Step2 : 2<=5 --> true
Step4 : 2. Jay ganesha ...
Step3 : i++

i
| ~~2~~ 3 |

Iteration 3:

Step2: 3 <=5 --> true
Step4: 3 Jay ganesha...
Step3: i++

i
~~3~~ 4

Iteration 4:

Step2: 4 <=5 --> true
Step4: 4 Jay ganesha...
Step3: i++

i
~~4~~ 5

Iteration 5:

Step2: 5 <=5 --> true
Step4: 5 Jay ganesha
Step3: i++

~~5~~ 6

Iteration 6:

Step2: 6 <=5 --> false
break

3 Do while loop almost same as while loop but it gets executed atleast once respective of the conditions.

The syntax of while loop is as follows:

```
do {
   // Code to be executed
  } while (Condition)
```

```
do {
    Printf("%d Jay ganesha...\n", i);
    i++;
} while (i<=5);
```

Drytun Diagram:

Step 1 : i=1 — i: 1

Iteration 1: // without checking condition
Step4 : 1. Jay ganesha...
Step3 : i++; — i: ~~1~~ 2

Iteration 2 : Step2: 2 <= 5 --> true
Step4: 2. jay ganesha...
Step3: i++ — i: ~~2~~ 3

Iteration 3: Step2: 3 <= 5 --> true
Step4: 3. jay ganesha...
Step3: i++ — i: ~~3~~ 4

Iteration 4: Step2: 4 <= 5 --> true
Step4: 4. jay ganesha...
Step3: i++ — i: ~~4~~ 5

Iteration 5 : Step2: 5 <= 5 --> true
Step4: 5. Jay ganesha...
Step3: i++ — i: ~~5~~ 6

Iteration 6: Step2 : 6 <= 5 --> false
break