C-05 ⇒ Structure of a C Program

① Documentation Section

Eg: // Author: Jayant Bhatt
// Date : 18 Dec, 2020
/* Program for addition of two numbers */

// ⇒ Single Line Comment
/* */ ⇒ Multiple Line Comment -

* This is used when someone sees our program in future, they can understand what is that program, called documentation section.

② Link Section :-

Eg ① #include<stdio.h> ⇒ Header file or library

* printf(), scanf() ⇒ These functions difinitions are given in this library (#include<stdio.h>
* Compiler don't understand printf() & scanf() function without using this library.

Eg ② #include<conio.h>

Console input output

* getch() function is difined in this.

Eg3:- #include <math.h>

Used for mathematical functions.

Eg4:- #include <string.h>

Used for string() functions like Strlen, Strcmp

* Linker will link the predefined function code in the program using header files.

(3) Definition Section:-

Eg:- #define PI 3.14159

#define MAX 200

MAX → Macro Name

200 → Value

* When we use the values more than one or many times in a program; then we can define a name called MACRO name for that specific value.

* Instead of using that value; we can use that MACRO name in the program

* Advantage:- When we want to update the value; we can simply change the value in this header file; instead of changing at places; if we can only the value.

Eg: * If 200 is used many times; we can define it using macro name.

* If we want to update value 200 to 100; we simply change it in Header file; here in the pgm where all the macro name MAX is used it changes to 100.

```
# define MAX 200
```

↓ Change value

```
# define MAX 100
```

* Not only values; we can also define; small function declarations with expressions or evaluation

Eg:(1) `# define add(x,y) x+y.` ⇒ add(4,3) Op → 7

Eg:(2)

```
# define greater(x,y) if(x>y)
                      printf("%d is greater than %d",
                              x,y); |
                      else |
                      printf("%d is lesser than %d"
                              x,y);

int main()
{
 greater(5,6);          Op → 5 is lesser than 6
 return 0;
}
```

④ Global Declaration Section:

Eg:
```
void sum()          main()
{                   {
local → int a;
declaration
}                   a = a+b;  ×
                    }
```

* a cannot be used in main(); because it is declared locally in sum() (OR)
* to use a in main(); In main() also we should declare 'int a'.

Instead of doing this; we can declare the variable outside of all the functions.

```
#include <stdio.h>
#include <conio.h>
int a;  → global declaration of variable
void sum();  →  "  "  of functions
void sub();  →  "  "  of functions
```

⑤ Main() function section:

* In a program; there will be only one main function; when we compile the pgm; the control goes to main function

Eg:
```
void main()
{
  Declaration;
  Executable; (sum = a+b  Logic)
}
```

(6) Sub Program Sections:

* It is user defined functions; generally which will come after main function.
* Main function can call the user defined functions.

```
#include <stdio.h>  → Link Section
#include <conio.h>
# define MAX 100  → define section
void main()
{
printf("Hello World");  (Executable part)
getch();
}
```

Eg: All sections:

```
# include <stdio.h>  → Link section
# include <conio.h>
# define MAX 100  → define section
int a = 50;  → global declaration variable.
void display();  → user defined function declaration
void main()  → main function
{
printf("Hello");
display();
getch();
}
void display()
{
printf("%d %d", a+a);
}
```

global

O/p →

Hello 100