Assignment 3: Functions

<Q.1>: State any three advantages of making your program modular using functions.

Ans:

~~The~~ Any three advantages of making your program modular using functions are as follows:

i) It reduces redundancy in the program.
ii) It makes debugging of program easier
iii) It is more effident and helps in better memory utilization.

<Q.2>: What is Recursion? What are its advantages and disadvantages?

Ans:

Recursion is the process of a function calling itself. It continues until base condition is satisfied.

Eg:
```
void add()
{ add; }.
```

Advantages

- Easier to write
- Reduces unnecessary calls
- Reduces code length
- Useful for solving data structure programs.

Disadvantages

- slower execution
- requires more memory space
- Hard to understand and analyzes code.

<Q.3>: Compare library function and user defined functions. What is purpose of user-defined functions.

Ans:

The purpose of user-defined function is to execute a specific block of code when called upto upon.

Library Function	Users-defined Functions
Built-in function defined in C-library	Functions defined by users.
pre-defined in compiler of C-language.	Not defined in compiles of C-language
stored in library file.	not stored in library file.
Execution of program doesn't begin from library function.	Execution of program begins from users-defined function.

<Q.4>: What types of error do function prototype help prevent?

Ans:

a) Syntax Error: function declaration helps us to catch syntax Error. It issues warning through compiler if problems between declaration and implementation persists.

b) Type Errors: function prototype helps us to prevent type errors by declaring the type of function parameters and function.

c) Linker Errors:

During program execution, it prevents linker error as it checks for undefined symbol errors.

[Q.57]: What is meant by scope of a variable within a program?

Ans:

Scope of a variable within a program means that the variables called within a program is executed inside that program only. Within a program, variable has global or local scope.

Globally declared programs are accessible in any part of the programs including functions.

Locally declared programs are only accessible inside the block or function it is declared upto and not throughout whole program.