**How To Write C-Statements**

Comments :- To Increase Readability Of A Program We Often Write Comments Which Is Ignored By Computer.

It Should be Enclosed By (Slash and Star and at the end Star and Slash Which also Means Division) /\* Your Comments\*/ In C++ You May Simple Write Double Slash And Then Comment // Your Comments.

Question 1. Write the difference between keywords and identifiers.

Keywords:- They are reserved words , that have standard predefined meaning in C. These Keywords can be used only for their intended purpose; they cannot be used as programmers defined identifiers. Keywords are always in small letters it is possible to use upper case keyword as identifiers. Normally it is not done as it is considered a poor programming practice.

Example of keywords :- auto , break, case, char, const, continue, default, do, double, else, enum, extern, float, for, goto, if, int, long, register, return, short, signed, sizeof, static, struct, switch, typedef, union, unsigned, void, volatile, while.

Identifiers:- they are names that are given to various program elements, such as variables, functions and arrays.

Identifiers consist of letters and digits, in any order, except that the first character must be a letter. Both upper- and lowercase letters are permitted, though common usage favours the use of lowercase letters for most types of identifiers. Upper- and lowercase letters are not interchangeable ( an uppercase letter is not equivalent to the corresponding lowercase letter). The underscore ( \_ ) can also be included and is considered to be a letter. An underscore is used in the middle of an identifier. An identifier may also begin with an underscore, though this rarely done in practice.

Example of identifiers :- area, sum, total\_number, Time\_table, time123, x1, y1, X1,Y1 perimeter, volume, surface\_area, pi, circle, circumference, PI, value, Number\_of\_student.

Question 2:- Write the following algebraic expression in C/C++ / or FORTRAN-95:-

1. y=sin-1 x + cos-1 x + tan-1 x, (ii) y=$\frac{x^{99}tan^{-1}x +z^{8}}{u^{8}+v^{77}}$ (iii) $e^{x^{2}}+\cos(x)$ +$\left|x\right|$

Solution:- In C expressions can be written as-

1. y=asin(x)+acos(x)+atan(x) .
2. y=(pow(x,99)\*atan(x)+pow(z,8))/(pow(u,8)+pow(v,77).
3. exp(x\*x)+cos(x)+abs(x)

Question 3 :- Write the difference between Compiler and Interpreter.

Solution:- The Compiler is a kind of system software that translates the programs written in high level language to machine language. Example- C-complier, Java-compiler, Pascal-compiler. The compiler converts the whole program to machine language. This converted program may be stored somewhere in memory and then may be executed without requiring the presence of the compiler.

Interpreter is a software similar to the compiler. It is a system software which is used to convert high level language programs to machine language but unlike compiler it converts one line and executed at a time and then converts next line into machine language and executed and so on. Interpreter takes more time in execution than compiler. Example:- Python interpreter.

Question 4:- What are Machine language(low level) and High level language.

Question 5:- write a program to find (i) area of a circle (ii) area and perimeter of a square (iii) volume of a sphere and surface area.

Solution :- (i) /\* program to calculate area of a circle \*/

#include <stdio.h>

int main()

{ float radius, area, pi=3.1416;

printf(“ Enter value of radius = ? “);

scanf(“%f”, &radius);

area=pi\*radius\*radius;

printf(“Area of circle = %f”, area);

return 0

}

1. first 2 lines of the above program same

third and other line as follows

{ int length, area, perimeter;

/\* you may also write float length, area, perimeter\*/

printf(“ Enter length = ? “);

scanf(“%d”, &length); /\* incase if you write float then it should be scanf(“%f”, &length); \*/

area=length\*length;

 perimeter=4\*length;

printf(“Area of square = %d and perimeter= %d”, area, perimeter);

/\* in case if you define variable as float length, area, perimeter; then following change has to be made printf(“Area of square = %f and perimeter= %f”, area, perimeter); \*/

return 0

}

1. first 2 lines of the above program same

third and other line as follows

{ float radius, volume,surface\_area, pi=3.1416;

printf(“ Enter value of radius = ? “);

scanf(“%f”, &radius);

surface\_area=4\*radius\*radius;

volume=4\*pi\*radius\*radius\*radius/3;

printf(“Surface Area= %f and Volume of sphere = %f”, surface\_area, volume);

return 0

}

Question 6

Draw the block diagram of a digital computer and explain any two of them briefly.

Functional units of a digital computer:-

A computer has four main components, they are (i) Input device, (ii) Memory (iii) Central Processing Unit(CPU) and (iv) Output device.

BLOCK DIAGRAM OF DIGITAL COMPUTER

CPU

InpuIt Device

ALU

CU

Output Device

 Memory

Input Device

Input Device

CPU

**CPU**