**Preprocessor**

* Give a = 12 and b = 36 write a C function/macro that returns 3612 without using arithmetic, strings and predefined functions.

#include<stdio.h>

# define join(a,b) b##a

**int** main()

{

printf("%d",join(12,36));

**return** 0;

}

* Stdlib – standard liberary - malloc() free().
* Stdio – standard input – output printf() and scanf().
* Boolean literals are only in c++ and not in c.
* Ew ca define a variable constant by two methods-

1. Using const keyword
2. Using #define pre-processor directive

* Pre-processor mainly performs three ask

1.removing comments – after removing comments the file is saved with .i extension.

2.file inclusion - #include – it will include all the header files from the liberary which the program need.

3.macros expansion - #define si 1000.

* Isgraph() – check weather a character is graphic character or not.
* Difftime() – it is present in time.h headerfile.

Program to find time difference

#include<time.h>

#include <stdio.h>

#include<unistd.h>

#include <ctype.h>

**int** main()

{

time\_t t1,t2;

time(&t1);

**for** (**int** i = 0; i <=3; ++i)

sleep(1);

time(&t2);

printf("Difference is %f seconds",difftime(t2,t1));

**return** 0;

}

Some math.h headerfiles

* Double ceil(double x) = return the smallest integer value greater than or equal to x.
* Double floor(double x) = return the largest integer value less then or equal to x.
* Double fabs(double x) = return the absolute value of x.
* Double log(double x) = return the log value(base-e) of x.
* Double log10(double x) = return the log base 10 of x.
* Double fmod(double x,double y) = remainder when x is divided by y.
* Double sqrt(double x) = it return the square root of x.
* Pow(x,y) = it returns x raise to power y.
* Modf(p1,&p2) = it will separate integer part in p2 and decimal part in p1.

#include<stdio.h>

#include<math.h>

**int** main ()

{

**double** x,p1,p2;

x = 8.123456;

p1 = modf(x, &p2);

printf("Integral part = %lf\n", p2);

printf("Fraction Part = %lf \n",p1);

**return**(0);

}

* Exp(x) = returns the vlaue of e raise to power x.
* Cos(x),acos(x),tanh(x) are some of the trigonometric functions.
* Typedef is used to give new name to predefined data types.it is written just below the header file.
* #define is a directive which is used to define alias.
* #define does not use semicolon where as type needs semicolon.
* Strftme()- is a function used to format date and time.