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**18/Eng02/078**

**CSC 206**

**15)**

/\*program to find prime factor of a number\*/

#include <stdio.h>

 int main()

 { int counter, N, i, isPrime;

 printf("Enter a Number ");

 scanf("%d", &N);

printf("List of Prime Factors of %d ", N); /\*Check for every number between 1 to N, whether it divides N \*/

 for(counter = 2; counter <= N; counter++);

{ /\* If counter completely divides N, then it is a factor of N\*/ if(N%counter==0)

 { /\* Check if counter is also a prime number \*/ isPrime == 1;

 for(i = 2; i <=(counter/2); i++)

 { if(counter%i==0)

{ isPrime=0;

 break; }

 } if(isPrime==1)

printf("%d ", counter); }

 } return 0; }

**16)**

C Operators are the symbols which are used to perform logical and mathematical operations in a C program.

The types of C operators are:

* **Arithmetic Operators**: These are used to perform mathematical calculations like addition, subtraction, multiplication, division and modulus
* **Relational Operators:** Which can be used to check the Condition, it always return true or false. This operator make use of ”<”, “>”, “=”.
* **Logical operators:** This operator can be used to combine more than one condition, they make use of &&, ||, !. “&&” operator is an AND operator and “||” operator is an OR operator, lastly the “!” operator is a NOT or negation operator.
* **Assignment operator:** This operators are used to assign a value to a variable, E.g: +=, -=, \*=, /=, %=, =a=b(considering a and b to be variables).
* **Bitwise Operator:** These operators are used to perform bit operations on given two variables. Bitwise operators work on bits and perform bit-by-bit operation.
* **Conditional /ternary Operator:** Conditional operators return one value if condition is true and returns another value is condition is false.
* **Special Operators:** &, \*, sizeof( ) operators. Sizeof() operator is used to return the size of variable. & operator retuenns the address of variables. \* Operator serves as a pointer to a variable. ?: serves as a conditional expression.
* **Increment and Decrement Operator:** These operators are used to either increase or decrease the value of the variable by one.

Increment operator is ++, it means add 1 to the value of the variable

Decrement operator --, it means remove 1 from the value of the variable.

For example n++/n+= is the same thing as n = n+1

Also n– / n-= is the same thing as n = n-1

* There are two types of increment or decrement. Pre increment/ pre decrement and Post increment /post decrement
* **Pre increment (++n):**

 n=++n1 ;

meaning that the value of n1 is increased before we assign it to n. it can also be written as

 n = ++ n1

 n1 = n1+1

 n = n1

The same thing is applicable to pre decrement.

* **Post increment (n++):**

 n=n1++ ;

meaning that the value of n1 is first assigned to n before n1 is increased. it can also be written as

 n = n1++

 n= n1

 n1 = n1+1

The same thing is applicable to post decrement.

**17)**

#include<stdio.h>

int main()

{

 int i;

 i= (100000\*0.05\*4);

 printf("The total interest is:%d",i);

}

**18)**

#include<stdio.h>

 int main()

{

 int a;

 char b;

 char c;

 char yes;

 char no;

 printf("Enter the age: ");

 scanf("%d",&a);

 printf("\nNigerian: ");

 scanf("%c",&b);

 printf("\nEnter the voterscard: ");

 scanf("%c",&c);

 if (a>=18,b=yes,c=yes)

 {

 printf("Eigibal for voting");

 }

 else if(a>=18,b=yes,c=no)

 {

 printf("Not eligibal for voting\n");

 }

 else if(a>=18,b=no,c=no)

 {

 printf("Not eligibal for voting\n");

 }

 else

 {

 printf("Not eligibal for voting\n");

 }

return 0;

}

**19)**

#include<stdio.h>

int main()

{

 const float temp = 36.5;

 float a ;

 printf("enter your temperature:");

 scanf("%f",&a);

 if(a==temp)

 {

 printf("your okay");

 }

 else if(a>=36 && a<=37)

 {

 printf("your okay");

 }

 else if(a>37)

 {

 printf("your sick");

 }

 else if(a<36)

 {

 printf("your also sick");

 }

 else

 {

 printf("your still sick");

 }

}

**20)**

#include<stdio.h>

int main()

{

 char c;

 char red, white, pink, basketball, yellow, green, magenta, blue;

 printf("enter your sport color: \n");

 scanf("%c",&c);

 if(c=red)

 {

 printf("football");

 }

 else if(c=white)

 {

 printf("volleyball");

 }

 else if(c=pink)

 {

 printf("rugby");

 }

 if(c==red)

 {

 printf("football");

 }

 else if(c=green)

 {

 printf("baseball");

 }

 else if(c=magenta)

 {

 printf("hockey");

 }

 else if(c=blue)

 {

 printf("badminton");

 }

 else

 {

 printf("invalid color");

 }

}

**21)**

#include<stdio.h>

#define P 1000530

#define R 0.03

#define N 5

int main()

{

 int a ;

 a= P\*(1+R)\*N;

 printf("The amount at the end of each year for 5 years:%d",a);

 return 0;

}

**22)**

 i) It means that if A is less than B print 1else print 2

 ii) it meas if A = B print true else print false

 iii) It means if B is less than A print 5 else print 1

 iv) It means if A is greater than B print 0 else print 1

**23)**

 #include<stdio.h>

#include<math.h>

int main()

{

 double a, b, c, discriminant, root1, root2, realPart, imagPart;

 printf("Enter coefficients a, b and c: ");

 scanf("%lf %lf %lf", &a, &b, &c);

 discriminant = b \* b - 4 \* a \* c;

 if (discriminant > 0) {

 root1 = (-b + sqrt(discriminant)) / (2 \* a);

 root2 = (-b - sqrt(discriminant)) / (2 \* a);

 printf("root1 = %.2lf and root2 = %.2lf", root1, root2);

 }

 else if (discriminant == 0) {

 root1 = root2 = -b / (2 \* a);

 printf("root1 = root2 = %.2lf;", root1);

 }

 else {

 realPart = -b / (2 \* a);

 imagPart = sqrt(-discriminant) / (2 \* a);

 printf("root1 = %.2lf+%.2lfi and root2 = %.2f-%.2fi", realPart, imagPart);

 }

 return 0;

}

**24)**

#include<stdio.h>

int main()

{

 int a, b, sum, difference, product;

 double division;

 float remainder;

 a = 80;

 b = 50;

 sum = (a+b);

 difference = (a-b);

 product = (a\*b);

 division = (double)a/(double)b;

 remainder = (a%b);

 printf("\nsum= %d", sum);

 printf("\ndifference= %d", difference);

 printf("\nproduct= %d", product);

 printf("\ndivision= %lf", division);

 printf("\nremainder= %f", remainder);

 return 0;

}

**25)**

#include <stdio.h>

int main()

{

 printf("\*\*\*\*\*\*\* \*\*\* \*\*\* \*\*\*\*\*\*\*");

}

**26)**

#include <stdio.h>

int main()

{

 printf("\*\*\*\*\*\*\*\*\*\*\*\* \*\*\* \*\*\* \*\* \*\*\* \*\* \* \*\*\*\*\*\*\*\*\*\*\*\*");

}

**27)**

#include<stdio.h>

int main()

{

 int a;

 float b;

 double c;

 printf("Enter any integer\n");

 scanf("%d", &a);

 printf("Enter any float value\n");

 scanf("%f", &b);

 printf("Enter any double\n");

 scanf("%lf", &c);

 printf("\nyour integer value is = %d",a);

 printf("\nyour float value is = %f",b);

 printf("\nyour double value is = %lf",c);

}