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Programming Fundamental

Quiz#01

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[A] What would be the output of the following programs:

(a)

```
int main( )
{
int a , b, c ;
scanf("%d",&a);

if ( a >= 400 )


b = 300 ;
c = 200 ;

printf ( "\n%d %d", b, c ) ;

}
```

OUTPUT:

Value of "c" i-e 200.

(b)

```
main( )
{
int a = 500, b, c ;
if ( a >= 400 )
b = 300 ;
c = 200 ;
printf ( "\n%d %d", b, c ) ;
}
```

OUTPUT:

b=300 and c=200.

(c)

```
main( )
{
int x = 10, y = 20 ;
if ( x == y ) ;
printf ( "\n%d %d", x, y ) ;
}
```

OUTPUT:

x=10 and y=20.

(d)

```
main( )
{
int x = 3, y = 5 ;
if ( x == 3 )
printf ( "\n%d", x ) ;
else ;
printf ( "\n%d", y ) ;
}
```

OUTPUT:

x and y are equal.

(e)

```
main( )
{
int x = 3 ;
float y = 3.0;
if ( x == y )
printf ( "\nx and y are equal" ) ;
else
printf ( "\nx and y are not equal" ) ;
}
```

OUTPUT:

x=y=10 and z=0

(f)

```
main( )
{
int k = 35 ;
printf ( "\n%d %d %d", k == 35, k = 50, k > 40 ) ;
}
```

OUTPUT:

0 , k=50 , 0

(g)

```
main( )
{
int i = 65 ;
char j = 'A' ;
if ( i == j )
printf ( "C is WOW" ) ;
else
printf( "C is a headache" ) ;
}
```

OUTPUT:

WOW.

(h)

```
main( )
{
int a = 5, b, c ;
b = a = 15 ;
c = a < 15 ;
printf ( "\na = %d b = %d c = %d", a, b, c ) ;
}
```

OUTPUT:

a=15, b=15 and c=0.

(i)

```
main( )
{
int x = 15 ;
printf ( "\n%d %d %d", x != 15, x = 20, x < 30 ) ;
}
```

OUTPUT:

1, x=20, 0,

[F] Attempt the following:

(a) Any year is entered through the keyboard, write a program to determine whether the year is leap or not. Use the logical operators **&&** and ||.

CODE:

```
#include<stdio.h>

int main()
{

    int year;
    printf("Enter a Year");
    scanf("%d",&year);

    if(year%4==0 || year%400==0)
    printf("%d is leap year",year);
    else
    printf("%d is not a leap year",year);

}
```

(b) Any character is entered through the keyboard, write a program to determine whether the character entered is a capital letter, a small case letter, a digit or a special symbol.

CODE:

```
#include<stdio.h>

int main()
{
    char ch;
    printf("Enter A Alphabet: ");
    scanf("%c",&ch);

    if (ch>=65 && ch<=90)
    printf("%c is CAPITAL",ch);

    else
    {
    if (ch>=97 && ch<=122)

    {printf("%c is SMALL",ch);}

    if(ch>=48 && ch<=57)
    {printf("%c is DIGIT",ch);}

    else
    {printf("%c is SPECIAL",ch);}

    }

}
```

(c) Write a program to output whether the person should be insured or not, his/her premium rate and maximum amount for which he/she can be insured.

CODE:

```c
#include<stdio.h>

main()
{
    int a;
  char h,l,g;

printf("Enter Heath  ");
scanf("%c",&h);
printf("Enter Location  ");
scanf("\n%c",&l);
printf("Enter Gender  ");
scanf("\n%c",&g);
printf("Enter Age ");
scanf("\n%d",&a);
   if((h=='excellent')&&(l=='c')&&(g=='m')&&(a>=25||a<=35))
   printf("\npremium is 4 policy cannot exceed 2 lakh");
      else
      if((h=='excellent')&&(l=='c')&&(g=='f')&&(a>=25||a<=35))
      printf("\npremium is 3 policy cannot exceed 1 lakh");
        else
        if((h=='p')&&(l=='v')&&(g=='m')&&(a>=25||a<=35))
        printf("\npremium is 6 policy cannot exceed 10,000");
          else
          printf("\n not Insured");


}
```

(d) Write a program, which will require the user to give values of hardness, carbon content and tensile strength of the steel under consideration and output the grade of the steel.

CODE:

```c
#include <stdlib.h>
#include <stdio.h>

int main()
{
    float h,c,t;

    printf(" Hardness: ",h);
    scanf("%f",&h);
    printf(" CarbonContent: ",c);
    scanf("%f",&c);
    printf(" TensileStrenght: ",t);
    scanf("%f",&t);


    if (h>50 && c<0.7 && t>5600)
    printf("GRADE:10");

    else
    {

        if (h>50 && c<0.7)
        printf("Grade:09");
            else
            {if (c<0.7 &&t>5600 )
             printf("GRADE:8");
                else
                {if(h>50 && t>5600)
                printf("GRADE:7");
                    else
                     {if (h>50 ||c<0.7 || t>5600)
                    printf("GRADE:6");

                        else
                        printf("GRADE:5");
                     }
                }
            }
    }


}
```

[G] What would be the output of the following programs:

(a)

```
main( )
{
int i = -4, j, num ;
j = ( num < 0 ? 0 : num * num ) ;
printf ( "\n%d", j ) ;
}
```

OUTPUT:

There will be no value because “num” is not define.

(b)

```
main( )
{
int k, num = 30 ;
k = ( num > 5 ? ( num <= 10 ? 100 : 200 ) : 500 ) ;
printf ( "\n%d", num ) ;
}
```

OUTPUT:

It will be 30.

(c)

```
main( )
{
int j = 4 ;
( !j != 1 ? printf ( "\nWelcome") : printf ( "\nGood Bye") ) ;
}
```

OUTPUT:

Welcome.

[H] Point out the errors, if any, in the following programs:

(a)

```
main( )
{
int tag = 0, code = 1 ;
if ( tag == 0 )
( code > 1 ? printf ( "\nHello" ) ? printf ( "\nHi" ) ) ;
else
printf ( "\nHello Hi !!" ) ;
}
```

OUTPUT:

“?” operator always comes with “:” .

(b)

```
main( )
{
int ji = 65 ;
printf ( "\nji >= 65 ? %d : %c", ji ) ;
}
```

OUTPUT:

No error.

(c)

```
main( )
{
int i = 10, j ;
i >= 5 ? ( j = 10 ) : ( j = 15 ) ;
printf ( "\n%d %d", i, j ) ;
}
```

OUTPUT:

No error.

(d)

```
main( )
{
int i = 10, j ;
i >= 5 ? ( j = 10 ) : ( j = 15 ) ;
printf ( "\n%d %d", i, j ) ;
}
```

OUTPUT:

“?” operator always comes with “:” .

(e)

```
main( )
{
int n = 9 ;
( n == 9 ? printf( "You are correct" ) ;
    : printf( "You are wrong" ) ;) ;
}
```

OUTPUT:

There should not be ";" after printf statement.

(f)

```
main( )
{
int kk = 65 ,ll ;
ll = ( kk == 65 : printf ( "\n kk is equal to 65" )
    : printf ( "\n kk is not equal to 65" ) ) ;
printf( "%d", ll ) ;
}
```

OUTPUT:

":" is used without any "?" operator.

(g)

```
main( )
{
int x = 10, y = 20 ;
x == 20 && y != 10 ? printf( "True" )
                   : printf( "False" ) ;
}
```

OUTPUT:

No error.

[I] Rewrite the following programs using conditional operators.

(a)

```
main( )
{
int x, min, max ;
scanf ( "\n%d %d", &max, &x ) ;
if ( x > max )
max = x ;
else
min = x ;
}
```

WITH CONDITIONAL OPERATOR:

```
#include<stdio.h>
int main()
{
    int x, min, max ;

    scanf ( "\n%d %d", &max, &x ) ;
    x = (x > max ? max : min);

    return 0;
}
```

(b)

```
main( )
{
int code ;
scanf ( "%d", &code ) ;
if ( code > 1 )
printf ( "\nJerusalem" ) ;
else
if ( code < 1 )
printf ( "\nEddie" ) ;
else
printf ( "\nC Brain" ) ;
}
```

WITH CONDITIONAL OPERATOR:

```
#include<stdio.h>
int main()
{
    int code ;

    scanf ( "%d", &code ) ;

    code > 1 ? printf("\nJerusalem")
     : (code < 1 ? printf("\nEddie")
     : printf("\nC Brain"));

    return 0;
}
```

(c)

```
main( )
{
float sal ;
printf ("Enter the salary" ) ;
scanf ( "%f", &sal ) ;
if ( sal < 40000 && sal > 25000 )
printf ( "Manager" ) ;
else
if ( sal < 25000 && sal > 15000 )
printf ( "Accountant" ) ;
else
printf ( "Clerk" ) ;
}
```

WITH CONDITIONAL OPERATOR:

```
#include<stdio.h>
int main()
{
    float sal ;

    printf ("Enter the salary" ) ;
    scanf ( "%f", &sal ) ;

    (sal < 40000 && sal > 25000)?printf("Manager")
    :(sal < 25000 && sal > 15000 ? printf("Accountant")
    : printf("Clerk"));

    return 0;
}
```

[J] Attempt the following:

(a) Using conditional operators determine:
(1) Whether the character entered through the keyboard is a lower case alphabet or not.

```
#include<stdio.h>
#include<conio.h>
int main()
{
    char chr;

    printf("Enter a character : ");
    scanf("%c", &chr);

    chr > 98 && chr < 123 ? printf("Lower case alphabet.")
    :printf("Not a lower case alphabet.");


    return 0;
}
```

(2) Whether a character entered through the keyboard is a special symbol or not.

```
#include<stdio.h>
#include<conio.h>

int main()
{
    char chr;

    printf("Enter a character : ");
    scanf("%c", &chr);

    chr < 123 && chr > 97 || chr > 64 && chr < 92 ? printf("Not
    :printf("Special symbol.");

    return 0;
}
```

(b) Write a program using conditional operators to determine whether a year entered through the keyboard is a leap year or not.

```
#include<stdio.h>
#include<conio.h>
int main()
{
    int year;

    printf("Enter a year : ");
    scanf("%d", &year);

    year % 4 ? printf("%d is a not a leap year.", year)
    :printf("%d is a leap year.", year);

    return 0;
}
```

(c) Write a program to find the greatest of the three numbers entered through the keyboard using conditional operators.

```
#include<stdio.h>
#include<conio.h>
int main()
{
    int a,b,c;

    printf("Enter three numbers : ");
    scanf("%d%d%d", &a,&b,&c);

    a>b&&a>c?printf("%d is the greatest.", a)
    :(b>a&&b>c?printf("%d is the greatest.", b)
    :printf("%d is the greatest.", c));

    return 0;
}
```