CMR Engineering College

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2022-26_I_CS_B_C Programming Lab

C PROGRAMMING_AUTOMATA FIX_OPERATORS AND EXPRESSIONS

Attempt : 1
Total Mark : 100
Marks Obtained : 100

Section 1 : Automata Fix

1. Write a program to swap two Integers using Bitwise Operators.

Answer

```
// You are using GCC
#include <stdio.h>

int main()
{
  int n1,n2;

  scanf("%d %d",&n1,&n2);

  n1=n1^n2;
  n2=n1^n2;
  n1=n1^n2;

  printf("%d %d",n1,n2);

  return 0;
}
```

Status : Correct ***Marks : 10/10***

2. Given the expression of x,y,z in the form of (x&&y&&z++).Write a program to get the input from the user and work on the expression.

Answer

```
#include<stdio.h>
int main()
{
   int x,y,z;
// You are using GCC
   scanf("%d %d %d",&x,&y,&z);
   printf("%d",x&&y&&z++);
}
```

Status : Correct ***Marks : 10/10***

3. Write a program to work with arithmetic operators.(+,-,*,/,%)

Answer

```
#include<stdio.h>
int main()
{
  int a,b,result;
  scanf("%d%d",&a,&b);
// You are using GCC
   printf("%d \n %d \n %d \n %d \n",a+b,a-b,a*b,a/b);
  result = a%b;
  printf(" %d \n",result);
  return 0;
}
```

Status : Correct ***Marks : 10/10***

4. Write a program to work with bitwise operators(&,^).

Answer

```
#include <stdio.h>
int main()
{
   int a ,b;
   scanf("%d%d",&a,&b);
   int result = 0;

// You are using GCC
printf("%d\n %d \n ",a&b,a^b);

 return 0;
}
```

Status : Correct **Marks : 10/10**

5. Write a program demonstrate an example of the left shift (<<) operator.

Note: Shift the number by 2

Answer

```
// You are using GCC
#include <stdio.h>

int main()
{
   int num;
   scanf("%d",&num);

   num = num<<2;
   printf("%d", num);

   return 0;
}
```

Status : Correct **Marks : 10/10**

6. Write a program to count the number of 1's present in a binary format of hexadecimal numbers.

Answer

```
// You are using GCC
#include <stdio.h>

int count1s(unsigned int num)
{
   int ones=0;
   while(num!=0){
      if(num%2==1)    ones++;
      num = num >> 1;
   }
   return ones;
}

int main()
{

   unsigned int data;
   scanf("%x",&data);
   printf("Total number of 1's are : %ld",count1s(data));

   return 0;
}
```

Status : Correct **Marks : 10/10**

7. You have been given a program to work with logical operators(&&,||,!). Find the errors from the program to get the correct output.

Conditions:

Check whether a is greater than b AND c is equal to dCheck whether a is greater than b OR c is equal to dCheck whether a is zero or NOT.

Answer

```
// You are using GCC
#include <stdio.h>

int main()
{
   int a , b , c, d;
```

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

    if (a > b && c == d)
        printf("a is greater than b AND c is equal to d\n");
    else
        printf("AND condition not satisfied\n");

    if (a > b || c == d)
        printf("a is greater than b OR c is equal to d\n");
    else
        printf("Neither a is greater than b nor c is equal to d\n");

    if (a)
        printf("a is not zero\n");
    else
        printf("a is zero");

    return 0;
}
```

Status : Correct **Marks : 10/10**

8. Write a program to work with increment & decrement operators.

Answer

```
#include <stdio.h>
int main()
{
   int x,y,z;
    scanf("%d",&x);
// You are using GCC
printf("%d\n%d",x+2,x);
}
```

Status : Correct **Marks : 10/10**

9. write a program to find the greatest number using conditional operator.

Answer

```
#include<stdio.h>
int main()
{
   int a,b,c,big;
   scanf("%d %d %d",&a,&b,&c);

// You are using GCC
big = a>b ? a: b;
big = big>c ? big: c;

printf("%d",big);
   return 0;
}
```

Status : Correct ***Marks : 10/10***

10. Write a program to work with relational operators(>,>=,<,<=,==,!=).

Answer

```
// You are using GCC
#include <stdio.h>

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

   if (a > b)
      printf("a is greater than b\n");
   else
      printf("a is less than or equal to b\n");


   if (a >= b)
      printf("a is greater than or equal to b\n");
   else
      printf("a is lesser than b\n");


   if (a < b)
```

```
        printf("a is less than b\n");
    else
        printf("a is greater than or equal to b\n");


    if (a <= b)
        printf("a is lesser than or equal to b\n");
    else
        printf("a is greater than b\n");


    if (a == b)
        printf("a is equal to b\n");
    else
        printf("a and b are not equal\n");


    if (a != b)
        printf("a is not equal to b\n");
    else
        printf("a is equal b\n");

    return 0;
}
```

Status : Correct ***Marks : 10/10***