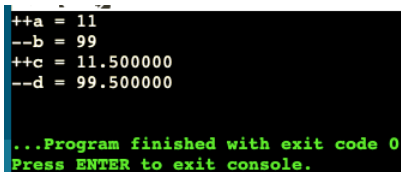


Question 1

Type the following code and observe the output to know the working of increment and decrement operators

```
#include <stdio.h>
int main()
{
    int a = 10, b = 100;
    float c = 10.5, d = 100.5;
    printf("++a = %d \n", ++a);
    printf("--b = %d \n", --b);
    printf("++c = %f \n", ++c);
    printf("--d = %f \n", --d);
    return 0;
}
```

Output:



```
++a = 11
--b = 99
++c = 11.500000
--d = 99.500000

...Program finished with exit code 0
Press ENTER to exit console.
```

Question 2

Type the following code and observe the output to know the working of relational operators

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

```
int
main ()
{
    int a = 5, b = 5, c = 10;
    printf ("%d == %d is %d \n", a, b, a == b);
    printf ("%d == %d is %d \n", a, c, a == c);
    printf ("%d > %d is %d \n", a, b, a > b);
    printf ("%d > %d is %d \n", a, c, a > c);
    printf ("%d < %d is %d \n", a, b, a < b);
}
```

```

printf ("%d < %d is %d \n", a, c, a < c);
printf ("%d != %d is %d \n", a, b, a != b);
printf ("%d != %d is %d \n", a, c, a != c);
printf ("%d >= %d is %d \n", a, b, a >= b);
printf ("%d >= %d is %d \n", a, c, a >= c);
printf ("%d <= %d is %d \n", a, b, a <= b);
printf ("%d <= %d is %d \n", a, c, a <= c);
return 0;

}

```

OUTPUT:

```

5 == 5 is 1
5 == 10 is 0
5 > 5 is 0
5 > 10 is 0
5 < 5 is 0
5 < 10 is 1
5 != 5 is 0
5 != 10 is 1
5 >= 5 is 1
5 >= 10 is 0
5 <= 5 is 1
5 <= 10 is 1

...Program finished with exit code 0
Press ENTER to exit console.

```

Question 3

Type the following code and observe the output to know the working of logical operators

```

#include <stdio.h>
int main ()
{
    int a = 5, b = 5, c = 10, result;
    result = (a == b) && (c > b);
    printf("(a == b) && (c > b) is %d \n", result);
    result = (a == b) && (c < b);
    printf("(a == b) && (c < b) is %d \n", result);
    result = (a == b) || (c < b);
    printf("(a == b) || (c < b) is %d \n", result);
}

```

```

result = (a != b) || (c < b);
printf("(a != b) || (c < b) is %d \n", result);
result = !(a != b);
printf("!(a != b) is %d \n", result);
result = !(a == b);
printf("!(a == b) is %d \n", result);
return 0;
}

```

```

(a == b) && (c > b) is 1
(a == b) && (c < b) is 0
(a == b) || (c < b) is 1
(a != b) || (c < b) is 0
!(a != b) is 1
!(a == b) is 0

...Program finished with exit code 0
Press ENTER to exit console.

```

Question 4

Write a C program that displays the size of all possible data types in C

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

```
int main()
```

```
{
```

```

printf("int is %lu bytes\n", sizeof(int));
printf("long int is %lu bytes\n", sizeof(long int));
printf("long long int is %lu bytes\n", sizeof(long long int));

```

```

printf("char is %lu bytes\n", sizeof(char));
printf("float is %lu bytes\n", sizeof(float));
printf("double is %lu bytes\n", sizeof(double));
printf("long double is %lu bytes\n", sizeof(long double));
return 0;

```

}

```
int is 4 bytes
long int is 8 bytes
long long int is 8 bytes
char is 1 bytes
float is 4 bytes
double is 8 bytes
long double is 16 bytes

...Program finished with exit code 0
Press ENTER to exit console. □
```

Question 5

Let the variable num=22.

Show the working (on paper) of left shift operator on num, i.e. num<<1, num<<2 ...

Validate the results by writing a program.

Repeat the above to see the working of right shift operator as well.

SS > 1

10/10

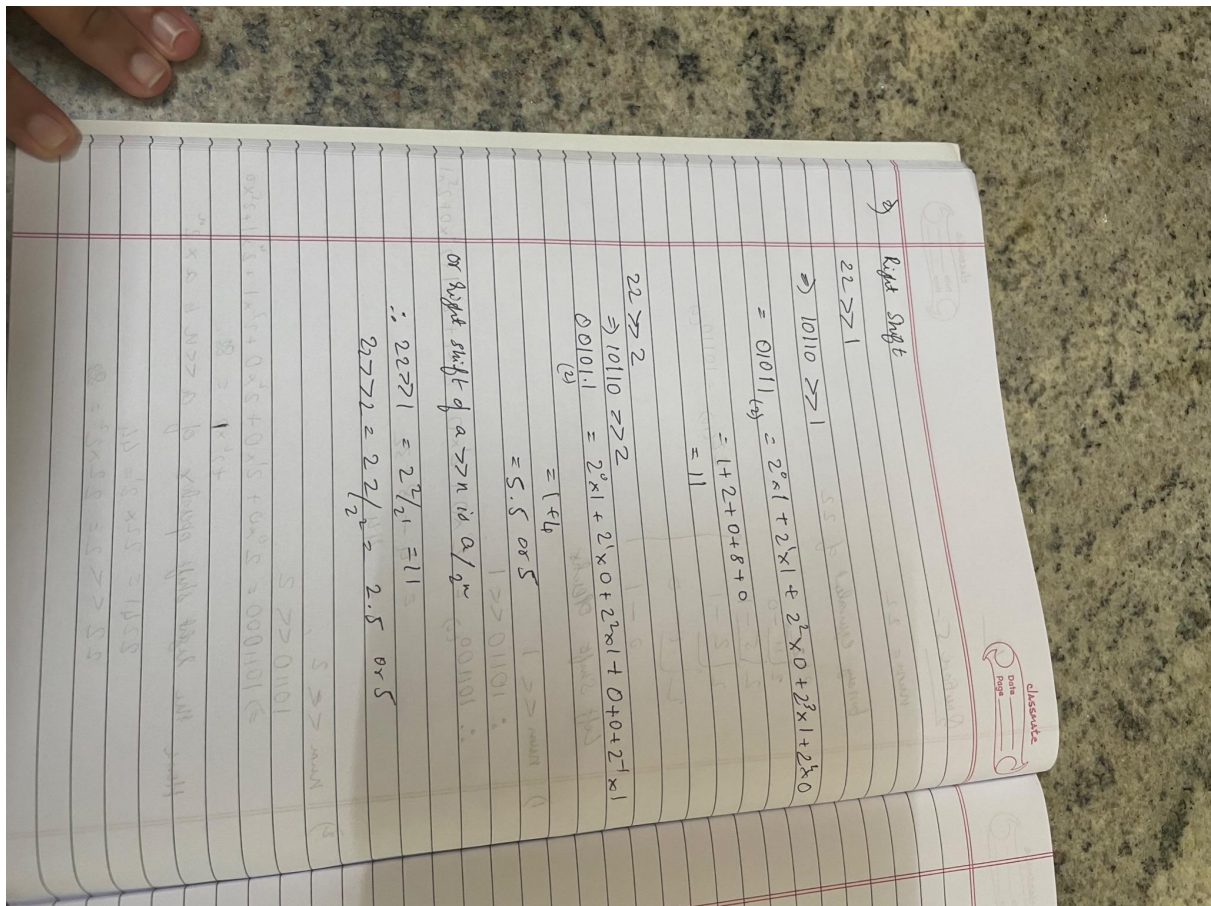
$$22_{(10)} = 10110_{(2)}$$

15)

3 2 2 2 2

operator

$$22 \times 2^1 =$$



```

9  #include <stdio.h>
10
11 int main() {
12     int x, num=22;
13     x=num<<1;
14     printf("%d \n", x);
15     x=num<<2;
16     printf("%d \n", x);
17     x=num>>1;
18     printf("%d \n", x);
19     x=num>>2;
20     printf("%d \n", x);
21     return 0;
22 }
23

```

Input

44
88
11
5

...Program finished with exit code 0
Press ENTER to exit console.

Question 6

Write a program to determine the largest of two numbers using ternary operator. Enhance the code to determine largest of three numbers. (if statements are not allowed)

```
9  #include <stdio.h>
10
11 int main()
12 {
13     int x,y,q;
14     printf("Enter the values of two numbers which have to be compared: \n");
15     scanf("%d %d",&x,&y);
16     q=(x>y)? x:y;
17     printf("%d is larger",q);
18     return 0;
19 }
```

input

```
Enter the values of two numbers which have to be compared:
54
36
54 is larger

...Program finished with exit code 0
Press ENTER to exit console.
```

```
9  #include <stdio.h>
10
11  int main()
12  {
13      int a,b,c,x;
14      printf("Enter the values of a, b and c: \n");
15      scanf("%d %d %d",&a,&b,&c);
16      x=(a>b) ? (a>c ? a:c):(b>c ? b:c);
17      printf("%d is larger",x);
18      return 0;
19  }
```

input

```
Enter the values of a, b and c:
36
54
78
78 is larger

...Program finished with exit code 0
Press ENTER to exit console.
```