

1) Read two integer values to perform bitwise operations (&, |, <<, >>)

```
#include <stdio.h>
int main()
{
    int a, b;
    printf("enter two integer values : ");
    scanf("%d %d", &a, &b);
    printf("\n Bitwise AND (a&b) = %d", a&b);
    printf("\n Bitwise OR (a|b) = %d", a|b);
    printf("\n Bitwise XOR (a^b) = %d", a^b);
    printf("\n Bitwise NOT (~a) = %d", ~a);
    printf("\n Bitwise NOT (~b) = %d", ~b);
    printf("\n Left shift (a<<1) = %d", a<<1);
    printf("\n Right shift (a>>1) = %d", a>>1);
    return 0;
}
```

Output

Enter two integers values : 4 , 2

Bitwise AND (a&b) = 0

Bitwise OR (a|b) = 71441108

Bitwise XOR (a^b) = 71441108

Bitwise NOT (~a) = -5

Bitwise NOT (~b) = -71441105

Left shift (a<<1) = 8

Right shift (a>>1) = 2

2) Relational operators (<, <=, >, >=, ==, !=)

```
#include <stdio.h>
int main()
{
    int a, b;
    printf("enter two integer values : ");
    scanf("%d %d", &a, &b);
```

```

printf ("\\n Results of relational operations");
printf ("a < b: %d\\n", a < b);
printf ("a > b: %d\\n", a > b);
printf ("a <= b: %d\\n", a <= b);
printf ("a >= b: %d\\n", a >= b);
printf ("a != b: %d\\n", a != b);
printf ("a == b: %d\\n", a == b);
return 0;
}

```

Output :-

Enter two integer values : 4, 2

Results of relational operations:

a < b: 0

a > b: 1

a >= : 1

a <= b: 0

a != b: 1

a == b: 0

3) a=4, b=2 ; 4==2

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

```
int main()
```

```
{
```

```
int a, b;
```

```
printf ("Enter two integer values: ");
```

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

```
if (a == b) {
```

```
printf ("Both numbers are equal.\\n");
```

```
}
```

```
else {
```

```
printf ("Both numbers are not equal.\\n");
```

```
return 0;
```

```
}
```

Output:-

Enter two integer values : 4, 2

Both numbers are not equal.

MCQ's on → increment, decrement
→ shift operations

What will be the output of the following C code?

```
#include <stdio.h>
int main()
{
    int x=5;
    int y=x++/2;
    printf("%d %d", y);
    return 0;
}
```

- 1) 3 a) compile-time error b) None of these

2) what will be the output of the following C code?

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

- 1) 10,9 b) 9,10 c) 9,9 d) 10,10

3) what will be the output of the following C code?

```
#include <stdio.h>
int main()
{
    int i=1;
    int result = ++i + i++;
    printf("%d %d \n", i, result);
    return 0;
}
```

- 1) 3,3 2) 3,4 3) 3,5 d) undefined behavior

4) what is the output of the following C code?

```
#include <stdio.h>
int main()
{
    int a=5, b;
    b=++a;
    printf("a=%d, b=%d", a,b);
    return 0;
}
```

5) what will be the output of the following c code?

```
#include <stdio.h>
int main()
{
    int i=0;
    int x=i++, y=++i;
    printf ("%d %d\n", x, y);
    return 0;
}
```

- a) 0,2 b) 0,1 c) 1,2 d) undefined

6) what will be the output of the following 'c' code?

```
#include <stdio.h>
void main()
{
    int x=4, y, z;
    y = --x;
    z = x--;
    printf ("%d %d %d", x, y, z);
}
```

- a) 323 b) 233 c) 322 d) 284

7) what will be the output of the following 'c' code?

```
#include <stdio.h>
void main()
{
    int a=-5;
    int k = (a++, ++a);
    printf ("%d\n", k);
}
```

- a)-4 b)-5 c) 4 d)-3

8) what will be the output of the following c code?

```
#include <stdio.h>
int main()
{
    int i=10;
    int *p = &i;
    printf ("%d\n", *p++);
}
```

- a) 10 b) 11 c) Garbage value d) Address of i

- 9) #include <stdio.h>
int main ()
{
 int c = 2^3;
 printf ("%d\n", c);
}
- a) 1 b) 8 c) 9 d) 10
- 10) #include <stdio.h>
int main () {
 int a = 5;
 int b = a++;
 printf ("value of a: %d\n", a);
 printf ("value of b: %d\n", b);
 return 0;
}
- a) 6,6 b) 6,5 c) 5,6 d) 5,5
- 11) #include <stdio.h>
int main () {
 int a = 5;
 int b = --a;
 printf ("value of a: %d\n", a);
 printf ("value of b: %d\n", b);
 return 0;
}
- a) 4,3 b) 5,4 c) 4,4 d) compilation error
- 12) #include <stdio.h>
int main () {
 int a = 5;
 int b = a--;
 printf ("value of a: %d\n", a);
 printf ("value of b: %d\n", b);
 return 0;
}
- a) 4,5 b) 4,4 c) garbage value d) 4,5,4
- 13) #include <stdio.h>
void main ()
{
 char a = 'a';
 int x = (a * 10) + 7;
 printf ("%d\n", x);
}

- a) 6 b) junk value c) compile time error d) None of the above
 14) #include <stdio.h>
 void main () {
 int x = 4;
 int *p = &x;
 int *k = p++;
 int y = p - k;
 printf ("%d", y);
 }
- a) 4 b) 8 c) 1 d) Run time error
- 15) #include <stdio.h>
 int main () {
 int a = 4, n, r, result = 0;
 scanf ("%d", &n);
 for (i=0, i<n; i++)
 result += a;
 }
- a) Addition of a and n b) Subtraction of a and n
 c) Multiplication of a and n d) Division of a and n
- 16) #include <stdio.h>
 int main () {
 int a = 2;
 if (a>>1)
 printf ("%d\n", a);
 }
- a) 0 b) 1 c) 2 d) NO output
- 17) The left shift operator (<<) can be used as an alternative to multiplication by 2.
 a) Dividing by 2 b) multiplying by 2
 c) Taking the modulo d) None of the mentioned
- 18) #include <stdio.h>
 int main () {
 int x = -2;
 printf ("%d\n", x>>1);
 return 0;
 }
- a) 1 b) -1 c) $2^{31}-1$ d) either -1 or 1

19) #include <stdio.h>
int main () {
 int x = 2;
 x = x < < 1;
 printf ("y%d\n", x);
}

q/4 6) i) c depends on the compiler d) 3
20) comment on the output of the following C code

```
#include <stdio.h>  
int main () {  
    int i, n, a=4;  
    scanf ("%d", &n);  
    for (i=0; i < n; i++)  
        a=a*2;  
}
```

q/5 logical shift left b) Logical shift right
c) Arithmetic shift right d) Bitwise exclusive OR
21) what will be the final value of c in the following C statement?
(initial value of c=2)

a) c<<c=1; b) c=2; c) c=3; d) c=4;
a) c=1; b) c=2; c) c=3; d) c=4;
22) what is the result of the expression $10 \ll 2$?
a) 20 b) 40 c) 30 d) 2

= $10 \times 2^2 = 10 \times 4 = 40$. Binary $\rightarrow 10$ is 00001010.

23) which of the following is equivalent to multiplying an integer x by 8?

a) $x >> 3$ b) $x << 3$ c) $x * 2^3$ d) $x * 8$

24) what is the result of the expression $16 >> 3$?

a) 2 b) 4 c) 8 d) 1

25) #include <stdio.h>

```
void main () {  
    unsigned int x = -5;  
    printf ("%d", x);  
    return 0;  
}
```

26) what is the result of the expression $\sec 2$?
a) 2 b) 1 c) 0.5 d) 0

27) what is the result of expression $10 \otimes 5 >> 1$?
a) 5 b) 10 c) 20 d) 1

28) what is the result of $20 >> 2$ for a positive integer?
a) 10 b) 5 c) 4 d) undefined

29) #include <stdio.h>

```
int main() {  
    int num = -10;  
    int result = num >> 1;  
    printf("Result of -10 >> 1 : %d\n");  
    return 0;  
}
```

a) -5 . b) -6 c) 5 d) implementation-defined

30) #include <stdio.h>

```
int main() {  
    int num = 15;  
    int result = num << 0;  
    printf ("Result of 15 << 0 : %d\n", result);  
    return 0;  
}
```

a) 15 b) 0 c) undefined d) Error