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1.1

Number Representation (7) top1.1.1 Number Representation: GO Classes 2024 | Weekly Quiz 12 | Programming | Question: 1 top

In C programming, constant integers are considered to be signed integers by default. One way to represent them as an unsigned constant is by appending `U` as a suffix. For example, `-1` is signed, whereas `-1U` is unsigned.

Which of the following condition(s) is/are TRUE?

- A. $-3 > -4U$ B. $-1U > -2$ C. $-1U > 0U$ D. $-1 > 1$

goclasses2024_wq12 goclasses programming number-representation multiple-selects 1-mark

Answer key key

1.1.2 Number Representation: GO Classes 2024 | Weekly Quiz 12 | Programming | Question: 2 top

Given that $(1001)_2$ is a 4-bit signed number.

If the system is 2^s complement, the equivalent decimal value is _____

goclasses2024_wq12 numerical-answers goclasses programming programming-in-c number-representation 1-mark

Answer key key

1.1.3 Number Representation: GO Classes 2024 | Weekly Quiz 12 | Programming | Question: 3 top

Minimum Number of bits to present $+14$ in binary in 2^s complement system?

goclasses2024_wq12 numerical-answers goclasses programming programming-in-c number-representation 1-mark

Answer key key

1.1.4 Number Representation: GO Classes 2024 | Weekly Quiz 12 | Programming | Question: 4 top

Consider a 2^s complement system with 16-bit short integer size. What is the smallest value that can be stored in a signed short?

- A. -2^{15} B. $-2^{15} - 1$ C. -2^{16} D. $-2^{16} - 1$

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Answer key key

1.1.5 Number Representation: GO Classes 2024 | Weekly Quiz 12 | Programming | Question: 6 top

What is the output of the following code? Assume that `int` is 32 bits, `short` is 16 bits, and the representation is two's complement.

```
signed short ix = -2;
printf("%u", ix);
```

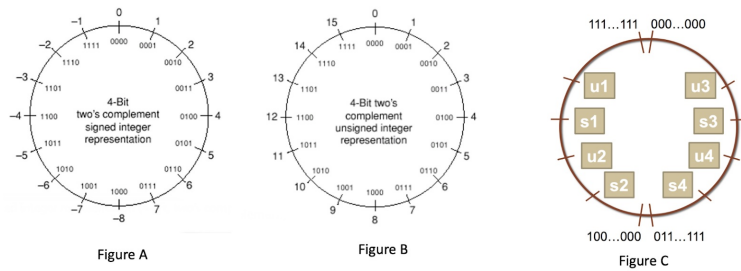
- A. -2 B. $2^{32} - 2$ C. $2^{32} - 1$ D. $2^{16} - 1$

goclasses2024_wq12 goclasses programming programming-in-c number-representation 2-marks

Answer key key

1.1.6 Number Representation: GO Classes 2024 | Weekly Quiz 12 | Programming | Question: 8 top

Consider Figure A and Figure B which represent 4 bit signed and unsigned numbers respectively in 2^s complement system.



Assume that a few variables are defined below and initialized in such a way that places them in the spot shown in Figure C.

```
int s1, s2, s3;
unsigned int u1, u2, u3;
```

Which of the following(s) is/are true?

- A. $s3 > u3$
- B. $s1 > s3$
- C. $u1 > u3$
- D. $s1 > u3$

goclasses2024_wq12 goclasses programming programming-in-c number-representation multiple-selects 2-marks

Answer key

1.1.7 Number Representation: GO Classes 2024 | Weekly Quiz 12 | Programming | Question: 9_{top}

Consider k bit binary pattern.

- T_{\max} and T_{\min} are maximum and minimum signed numbers we can represent using k bits.
- U_{\max} and U_{\min} are maximum and minimum unsigned numbers we can represent using k bits.

Which of the following(s) is/are true for $k = 16$?

Here $| \cdot |$ represents absolute value of a number i.e., $|r| = -r$ if $r < 0$ otherwise $|r| = r$.

- A. $|T_{\min}| = T_{\max} + 1$
- B. $U_{\max} = 2 * T_{\max} + 1$
- C. $U_{\max} = |T_{\min}| + T_{\max} + 1$
- D. $U_{\min} = |T_{\min}|$

goclasses2024_wq12 goclasses programming programming-in-c number-representation multiple-selects 2-marks

Answer key

1.2 Output (2) _{top}

1.2.1 Output: GO Classes 2024 | Weekly Quiz 12 | Programming | Question: 10_{top}

What will be the output on the execution of the following code segment?

```
main()
{
    unsigned num1=-1;
    signed num2=1;
    if(num1 < num2)
        printf("less");
    else if(num1>num2)
        printf("greater");
    else if(num1==num2)
        printf("equal");
}
```

- A. greater
- B. less
- C. equal
- D. error

goclasses2024_wq12 goclasses programming programming-in-c output 2-marks

Answer key

1.2.2 Output: GO Classes 2024 | Weekly Quiz 12 | Programming | Question: 5_{top}

What will be the output of the following program?

(Assume 2's complement system for signed numbers)

```
int main() {
    int i = -1;
    int x = (unsigned char)i;
    printf("%d", x);
}
```

}

- A. -1 B. 255 C. A huge number D. 11111111

goclasses2024_wq12 goclasses programming programming-in-c number-representation output 1-mark

Answer key

1.3 Programming In C (1) [top](#)

1.3.1 Programming In C: GO Classes 2024 | Weekly Quiz 12 | Programming | Question: 7 [top](#)



Consider two program fragments given below. UINT_MAX is the maximum unsigned number in the system

```
main()
{
    unsigned int a = UINT_MAX;
    char c = -1;
    if (c == a)
        printf("GO Classes");
}
```

Program 1

```
main()
{
    unsigned int b = UINT_MAX;
    char d = -10;
    if (d == b-10)
        printf("GATE Overflow");
}
```

Program 2

Which of the following(s) is/are true? All the prints are without double commas.

- A. Program 1 prints "GO Classes" B. Program 2 prints "GATE Overflow"
C. Program 1 does not print "GO Classes" D. Program 2 does not print "GATE Overflow"

goclasses2024_wq12 goclasses programming programming-in-c multiple-selects 2-marks

Answer key

Answer Keys

1.1.1	A;B;C	1.1.2	-7	1.1.3	5	1.1.4	A	1.1.5	B
1.1.6	A;C;D	1.1.7	A;B	1.2.1	A	1.2.2	B	1.3.1	A;D