Q1.signed char minimum value:-128

explaination:

char occupies 8bits(1byte) where the left most bit occupies the sign so there are 7 bits remaining and maximum of 2^7(128) can be written starting with -1 and ending with -128 so signed char has a minimum value of -128.

Q2.signed char maximum value :127

explanation:

char occupies 8bits(1byte) where the left most bit occupies the sign so there are 7 bits remaining and maximum of 2^7(128) can be written starting with 0 and ending with(2^7)-1 so the signed char has a maximum value of 127

Q3.unsigned char minimum value:0

char occupies 8bits(1byte) where the left most bit occupies the sign here it is unsigned so the leftmost bit is also free and we can write a maximum of 2^8 numbers starting with 0 because it is the least possible unsigned value.

Q4.unsigned char maximum value:255

explanation:

char occupies 8bits(1byte) where the left most bit occupies the sign here it is unsigned so the leftmost bit is also free and we can write a maximum of 2^8 numbers starting with 0 and ending with (2^8)-1.so the unsigned char maximum value of 255.

Q5.char minimum value :-128

explanation:

char occupies 8bits(1byte) where the left most bit occupies the sign so there are 7 bits remaining and maximum of 2^7(128) can be written starting with -1 and ending with -128 so signed char has a minimum value of -128.

Q6.char maximum value:127

explanation:

char occupies 8bits(1byte) where the left most bit occupies the sign so there are 7 bits remaining and maximum of 2^7(128) can be written starting with 0 and ending with(2^7)-1 so the signed char has a maximum value of 127.

Q7.signed short minimum value:-32768

explanation:

the number of bits a short integer ocuupies mainly depends upon the compiler that we are using here it occupies 2 bytes of memory(16bits) and the left most bit occupies the sign so there are 15 bits remaining and a maximum of 2^15 numbers can be written starting with -1 an d ending with -2^15(-32768) so the signed char has a minimum value of -32768.

Q8.signed short maximum value:32767

explanation:

the number of bits a short integer ocuupies mainly depends upon the compiler that we are using here it occupies 2 bytes of memory(16bits) and the left most bit occupies the sign so there are 15 bits remaining and a maximum of 2^15 numbers can be written starting with 0 and ending with 32767((2^15)-1).

Q9.unsigned short minimum value:0

explaination:

the number of bits a short integer ocuupies mainly depends upon the compiler that we are using here it occupies 2 bytes of memory(16bits) and the left most bit occupies the sign but the leftmost bit is free here as it is unsigned and occupies a maximum of 2^16 numbers starting with 0 as it is the

least possible unsigned value.

Q10.unsigned short maximum value :65535

explanation:

the number of bits a short integer ocuupies mainly depends upon the compiler that we are using here it occupies 2 bytes of memory(16bits) and the left most bit occupies the sign but the leftmost bit is free here as it is unsigned and occupies a maximum of 2^16 numbers starting with 0 and

ending with (2^16)-1.so the unsigned short has a maximum value of 65535.

Q11.signed int minimum value:-2147483648

explanation:

the number of bits a integer ocuupies mainly depends upon the compiler that we are using here it occupies 4 bytes of memory(32bits) and the left most bit occupies the sign so there are 31

bits remaining and a maximum of 2^31 numbers can be written starting from -1 and ending with -(2^31).

Q12.signed int maximum value:2147483647

explanation:

the number of bits a integer ocuupies mainly depends upon the compiler that we are using here it occupies 4 bytes of memory(32bits) and the left most bit occupies the sign so there are 31

bits remaining and a maximum of 2^31 numbers can be written starting from 0 and ending with (2^31)-1 so the signed int maximum value is 2147483647.

Q13.unsigned int minimumvalue :0

explanation:

the number of bits a integer ocuupies mainly depends upon the compiler that we are using here it occupies 4 bytes of memory(32bits) and the left most bit occupies the sign but the leftmost bit is free her so there are 32bits remaining and a maximum of 2^32 numbers can be written starting from 0 because it is the least possible value .

Q14.unsigned int maximum value:4294967295

explanation:

the number of bits a integer ocuupies mainly depends upon the compiler that we are using here it occupies 4 bytes of memory(32bits) and the left most bit occupies the sign but the leftmost bit is free here so there are 32 bits remaining and a maximum of 2^32 numbers can be written starting from 0 and ending with (2^32)-1so the unsigned int has maximum value of 4294967295.

Q15.signed long minimum value :-922337203685477588

explanation:

the number of bits a long integer ocuupies mainly depends upon the compiler that we are using here it occupies 8 bytes of memory(64bits) and the left most bit occupies the sign so there are 63

bits remaining and a maximum of 2^63 numbers can be written starting with -1 and ending with

-(2^63) .

Q16.signed long maximum value :9223372036854775807

explanation:

the number of bits a long integer ocuupies mainly depends upon the compiler that we are using here it occupies 8 bytes of memory(64bits) and the left most bit occupies the sign so there are 63

bits remaining and a maximum of 2^63 numbers can be written starting with 0 and ending with

(2^63)-1 so the signed long maximum value is 922372036854775807.

Q17.unsigned long minimum value:0

explanation:

the number of bits a long integer ocuupies mainly depends upon the compiler that we are using here it occupies 8 bytes of memory(64bits) and the left most bit occupies the sign but the leftmost bit is free here so there are 64 bits remaining and a maximum of 2^64 numbers can be written starting with 0 because it is the least possible unsigned value .

Q18.unsigned long maximum value :18446744073709551615

explanation:

the number of bits a long integer ocuupies mainly depends upon the compiler that we are using here it occupies 8 bytes of memory(64bits) and the left most bit occupies the sign but the leftmost bit is free here so there are 64 bits remaining and a maximum of 2^64 numbers can be written starting with 0 and ending with (2^64)-1 so unsigned long has maximum value of 18446744073709551615.

Q19.signed long long minimum value :-922337203685477588

explanation:

the number of bits a long long integer ocuupies mainly depends upon the compiler that we are using here it occupies 8 bytes of memory(64bits) and the left most bit occupies the sign so there are 63

bits remaining and a maximum of 2^63 numbers can be written starting with -1 and ending with

-(2^63) .so the signed long long has a minimum value of -922337203685477588.

Q20.signed long long maximum value :9223372036854775807

explanation:

the number of bits a long long integer ocuupies mainly depends upon the compiler that we are using here it occupies 8 bytes of memory(64bits) and the left most bit occupies the sign so there are 63bits remaining and a maximum of 2^63 numbers can be written starting with 0 and ending with

(2^63)-1 so the signed long maximum value is 922372036854775807..

Q21.unsigned long long minimum value:0

explanation:

the number of bits a long long integer ocuupies mainly depends upon the compiler that we are using here it occupies 8 bytes of memory(64bits) and the left most bit occupies the sign but the leftmost bit is free here so there are 64 bits remaining and a maximum of 2^64 numbers can be written starting with 0 because it is the least possible unsigned value .

Q22.unsigned long long maximum value : 18446744073709551615

explanation:

the number of bits a long long integer ocuupies mainly depends upon the compiler that we are using here it occupies 8 bytes of memory(64bits) and the left most bit occupies the sign but the leftmost bit is free here so there are 64 bits remaining and a maximum of 2^64 numbers can be written starting with 0 and ending with (2^64)-1 so unsigned long has maximum value of 18446744073709551615.