These questions are not about numerical base conversion, so try to solve them without translating to binary (or at least doing minimal conversion).

a) What is the least-significant digit in the binary representation of $74658923640126562305980127450645738568091755348704 7_{10}$
The number is odd (noting that the concept of "odd" transcends numerical base), so the least-significant digit is 1.

b) What are the three least-significant digits in the binary representation of the result of 398765879354534_{10} x 8_{10}
Just like base-10 multiplication by 10^3 would result in all three least-significant digits being 0, base-2 multiplication by 2^3 (8_{10}) does the same. 000

c) What are the five least-significant digits in the binary representation of $9999999999999999999999999999_{16}$
Hexadecimal can be translated digit-for-digit(s) to binary. 9_{16} is the same as 1001_2, so the digits in question are 11001.

d) How many digits would be needed to represent 6354_{10} in base-2?
$\log_2(6354)$ is between 12 and 13, so 13 digits are needed.

e) What is the most-positive number that can be represented with six bits if those bits are used to represent numbers using unsigned binary? Express the answer in binary and then in decimal.
$111111_2 = 63_{10}$

f) What is the most-positive number that can be represented with six bits if those bits are used to represent numbers using two's complement binary? Express the answer in binary and then in decimal.
$011111 = 31_{10}$

g) What is the most-positive number that can be represented with six bits if those bits are used to represent numbers using a "tally" system, where each bit represents whether or not a single "thing" exists? Express the answer in binary and then in decimal.
$111111 = 6_{10}$