What is the correct IUPAC name of the organic molecule shown below?

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| The substance below is **3-bromo-2-methylbutan-2-ol**    • parent hydrocarbon chain is 4 carbon atoms in length  • parent functional group is –OH/hydroxy group \*  • the hydroxy group is assigned the lowest carbon number of 2  *so far, we have* ***butan-2-ol***  • side chains are -bromo and –methyl #  • named in alphabetical order, therefore bromo before methyl  • sticking with –OH on carbon number 2  *therefore,* ***3-bromo-2-methylbutan-2-ol*** |

Why is the molecule above **not** called...

**i)** 1,1-dimethyl-2-bromopropan-1-ol

The longest continuous chain of carbon atoms (parent hydrocarbon chain) is 4 carbon atoms in length, but propan-1-ol only has a longest chain of 3 carbon atoms long so therefore cannot be propan-1-ol

**ii)** 2-bromo-3-hydroxy-3methybutane

This is not an alkane as there is the hydroxy functional group (-OH) present, therefore this is an alcohol

**iii)** 2-methyl-3-bromobutan-2-ol

The side chains must be written in alphabetical order, therefore b in -bromo before m in -methyl

**iv)** 2-bromo-3-methylbutan-3-ol

The functional group must be assigned the lowest possible number of the carbon atom, which is not 3 but 2

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| **\*** occasionally there is more than 1 functional group present, the order of precedence is  NH4+  carboxylic acid  ester  amides  aldehydes  ketones  alcohols  amines |

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| # the common side chains are (must be in alphabetical order)  - Br bromo  - Cl chloro  - C2H5 ethyl  - OH hydroxy  - I iodo  - CH3 methyl  = O oxy *(not required for NCEA Level 2 or 3)* |

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