T41 – AVOGADRO'S THEORY

ASSIGNMENT

At the top of your assignment, please print **"T41 – Avogadro's Theory", your LAST then First name, block and date**. Show all your work for questions requiring calculations; **marks will not be awarded for final answers only**. Complete these questions in the order given here. *[Marks indicated in italicized brackets.]*

1. State Avogadro's theory. *[2]*

2. State the molar volume of a gas at STP and SATP. *[2]*

3. A container of what volume is used to store 3.876×10^{-3} mol of a gas at STP? *[2]*

4. 9.8 g of phosphorous trichloride gas is stored in a container of what volume at SATP? *[3]*

5. 7.69×10^{22} molecules of bromine gas occupy what volume at STP? *[3]*

6. A 4.5 L container can hold how many moles of propane gas, $C_3H_{8(g)}$ at SATP? *[2]*

7. What mass of methane gas, $CH_{4(g)}$, is stored in 10.987 L at STP? *[2]*

8. 38 L of butane gas, $C_4H_{10(g)}$, contains how many molecules of butane at SATP? *[3]*

9. How many hydrogen atoms are in 5 L of ammonia gas at STP? *[4]*

10. A sample of sulphur trioxide is found to contain 8.8204×10^{21} atoms of oxygen. What volume is required to store the sample at SATP? *[4]*

[28 marks in total]

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