

CHEMISTRY

Time : 1 hr.

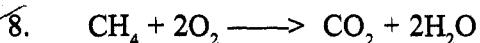
Total Marks : 25

Std - X

1. Variation in temperature and pressure affects the volume of gases. Based on this, answer the following questions.
- Balloons used in weather forecasting become larger and larger as they go higher and higher why? (2)
 - Which gas law does this phenomenon substantiate? (1)
 - Write down the mathematical form of this law? (1)
2. Complete the Table

Molecule	Vol. at Mass STP (L)	Mass (g)	No of molecules
NH ₃	22.4	a	b
SO ₂	c	d	6.022 × 10 ²³
CO ₂	e	220	f

3. How petroleum gas, ammonia and hydrogen gas are liquified? (2)
4. 320 g of SO₂ is taken in the first Jar and CO is taken in the Second Jar. The number of molecules in two Jars are equal. Based on this answer the following?
- Find the number of SO₂ molecules in 320 g SO₂? (2)
 - What is the molecular mass of CO? (1)
 - Find the mass of CO in the Jar? (2)
5. A paper is floating in air. The molecules of the paper collide with the molecules of Oxygen. Even then paper does not catch fire. What may be the reason? (2)
6. A gas enclosed in a cylinder fitted with a piston occupies a volume of 5L at 298 K. To what temperature should the gas be heated to double the volume as the pressure remains constant? (3)
7. Combined gas equation is $\frac{PV}{T} = \text{constant}$. Derive this equation by using the gas laws (3)



This is the balanced Chemical equation for the combustion of methane gas in Oxygen. Based on this Answer the following questions

- What is the mass of O₂ required to react with 16g of CH₄? (1)
- Find the amount of O₂ required to react with 160g CH₄? (2)