

Sulphur, Nitrogen, Halogen, Inert Gases

These notes are your ultimate revision weapon to revise Sulphur, Nitrogen, Halogen, Inert Gases. We've distilled years of previous exam questions (PYQs) into one powerful, concise resource. Everything you need to know, nothing you don't.

- **PYQs, Decoded:** All key concepts from past exams, organized and simplified.
- **Revise in Record Time:** Short, precise, and designed for last-minute review.
- **Focus on What Matters:** Master high-probability topics and boost your confidence.

Composition and Properties of Earth's Atmosphere

Major Atmospheric Gases



- **Nitrogen (N_2)**
 - The most abundant gas in the Earth's atmosphere.
 - Approximate percentage by volume: 78-79%.
 - Classified as a **permanent gas** (concentration remains nearly constant).
- **Other Common Gases**
 - **Carbon Dioxide (CO_2)**: Has the lowest percentage by volume among the common gases (Nitrogen, Oxygen, Argon, CO_2).
 - **Argon**: Present in a higher concentration than CO_2 .
 - **Neon**: Another permanent gas present in the atmosphere.

Gas Cycles

- Gaseous biogeochemical cycles include **Nitrogen (N_2)** and **Oxygen (O_2)**.
- **Carbon** is **not** part of a purely gaseous cycle.

Special Names, Uses, and Properties of Gases

Noble Gases

- **Helium:** A noble gas.
- **Xenon:** Known as the "**Stranger Gas**".

Medical and Industrial Gases

- **Nitrous Oxide (N_2O)**
 - Commonly known as "**Laughing Gas**".
 - Used as an **anaesthetic**.
 - *Note: Nitric oxide (NO) is not laughing gas.*
- **Diving Gas Mixtures**
 - Deep-sea divers use an **Oxygen-Helium mixture** (Heliox) for respiration.
 - This prevents conditions like nitrogen narcosis and is used instead of the normal air mixture (Oxygen-Nitrogen).
- **Other Uses**
 - **Nitrogen** is used to inflate the tyres of aircraft.
 - **Helium** is used to fill balloons because it is non-flammable and does not form explosive mixtures, unlike hydrogen.

Halogens (Group 17 Elements)

- **Physical States at Room Temperature:**
 - **Bromine:** The only halogen that is a liquid (red liquid).
 - **Iodine:** Solid.
 - Chlorine and Fluorine: Gases.
- **Reactivity:** **Fluorine** is the most reactive halogen.
- **Medical Use:** A halogen (iodine) is used as an **analgesic** (pain reliever).

Solubility, Plant Nutrition, and Other Facts

Solubility in Water

- **Ammonia (NH_3)** is easily soluble in water.
- *For contrast: Gases like Nitrogen and Iodine are not easily soluble.*

Plant Nutrition

- **Insectivorous plants** (e.g., Venus flytraps) trap insects to compensate for the **deficiency of Nitrogen** in the soil they grow in.

Miscellaneous Facts

- **Electrical Conductivity:** Among non-metals, **Selenium** is noted as being a fair conductor (it is not a poor conductor).
- **Odor:** The foul smell of dead fish is due to **amine compounds**.
- **Molecular Shape:** **Sulphur Hexafluoride (SF_6)** has an **octahedral** molecular shape.



Gases in Lighting

Fluorescent Tubelights

- The most common substances used are **mercury vapour and argon gas**.
- The gas is filled at **low pressure**.
- Some sources mention a mixture of **argon and neon**.

Decorative Discharge Tubes

- **Neon gas** is used in discharge tubes for optical decoration and advertising (neon signs).

Tear Gas

- **Tear gas** can be **Chlorine (Cl_2)**.
- Other options include Sulphur Dioxide (SO_2).

Know More About Sulphur, Nitrogen, Halogen, Inert Gases:

- [Sulphur, Nitrogen, Halogen, Inert Gases – Old Year Questions](#)
- [Sulphur, Nitrogen, Halogen, Inert Gases One Liner Questions & Answers](#)

