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Survey of India
1st Edition

CONVENTIONAL SYMBOL

Survey of India
1974-75

1. What is a chemical reaction?
 A process in which one or more substances are converted into one or more new substances.
 Example: $2H_2 + O_2 \rightarrow 2H_2O$

2. Types of chemical reactions:
 a. Combination reaction: Two or more substances combine to form a single product.
 Example: $2Mg + O_2 \rightarrow 2MgO$
 b. Decomposition reaction: A single substance breaks down into two or more simpler substances.
 Example: $2H_2O \xrightarrow{\text{Electricity}} 2H_2 + O_2$
 c. Displacement reaction: A more reactive element displaces a less reactive element from its compound.
 Example: $Zn + CuSO_4 \rightarrow ZnSO_4 + Cu$
 d. Double displacement reaction: Two compounds exchange their ions or atoms to form two new compounds.
 Example: $NaCl + AgNO_3 \rightarrow NaNO_3 + AgCl$

3. Chemical equations:
 A symbolic representation of a chemical reaction.
 Example: $2H_2 + O_2 \rightarrow 2H_2O$
 Balancing a chemical equation: The number of atoms of each element must be the same on both sides of the equation.

4. Chemical reactions and energy:
 a. Exothermic reaction: A reaction that releases energy in the form of heat or light.
 Example: $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O + \text{Energy}$
 b. Endothermic reaction: A reaction that absorbs energy in the form of heat or light.
 Example: $2H_2O \xrightarrow{\text{Electricity}} 2H_2 + O_2$

5. Chemical reactions and the environment:
 a. Corrosion: The gradual destruction of materials by chemical reactions.
 Example: $Fe + O_2 + H_2O \rightarrow Fe_2O_3 \cdot xH_2O$
 b. Acid rain: Rainwater that is slightly acidic due to the presence of sulfuric acid and nitric acid.
 Example: $SO_2 + H_2O \rightarrow H_2SO_4$
 c. Global warming: The gradual increase in the average temperature of the Earth's atmosphere due to the greenhouse effect.

6. Chemical reactions and the human body:
 a. Respiration: The process by which the body takes in oxygen and releases carbon dioxide.
 Example: $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O + \text{Energy}$
 b. Digestion: The process by which food is broken down into simpler substances that can be absorbed by the body.

7. Chemical reactions and the economy:
 a. Metallurgy: The process of extracting metals from their ores.
 Example: $2Fe_2O_3 + 3C \rightarrow 4Fe + 3CO_2$
 b. Chemical industry: The production of chemicals and their derivatives for various uses.

8. Chemical reactions and the future:
 a. Renewable energy: Energy that is derived from natural sources that are replenished over time.
 Example: $2H_2 + O_2 \rightarrow 2H_2O + \text{Energy}$
 b. Artificial intelligence: The simulation of human intelligence in machines.

9. Chemical reactions and the world:
 a. Space exploration: The exploration of outer space by spacecraft.
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10. *Journal of the American Medical Association*, 1991; 266: 1000-1001.

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PROPOSED CAT LAND BANK
SHAHBAD-PIHANI ROAD, HARDOI

*Paul Blundie, author of the fiction novel **Survivor** (Bantam Books),*
5 wrote *g* of *Paul Blundie* in *Survivor* "Paul Blundie is a ST. John's resident. (2) The book was
10 signed by Paul Blundie. It is a copy of the book, and was sent to the book."

प्रमाणित निदेशक
वैकीर्ण ताल प्रवर्धिका
श्रीमती - लक्ष्मी