Class 10 Science · Chapter 4: Carbon and its Compounds

Worksheet · 20 marks · about 40 minutes · based on NCERT

Name _____ Class and section _____ Date _____

Scan for the free Class 10 Science test

1. In which of these molecules do the two atoms share the largest number of electrons between them? [1]

(a) H_2 (b) N_2
(c) O_2 (d) Cl_2

2. An open-chain hydrocarbon has the molecular formula C_5H_{10}. It belongs to the [1]

(a) alkenes (b) alkanes
(c) alkynes (d) carboxylic acids

3. A form of carbon whose molecule has sixty carbon atoms arranged like the panels of a football belongs to the class called [1]

(a) diamonds (b) fullerenes
(c) graphites (d) hydrocarbons

4. A student suggests that carbon could reach a noble gas configuration by losing all four of its valence electrons to form C^{4+}. The main objection to this is that [1]

(a) removing four electrons would need a large amount of energy
(b) a nucleus of six protons cannot hold ten electrons
(c) carbon has no electrons in its outermost shell
(d) the C^{4+} ion would have eight electrons in its outermost shell

5. A diamond in a ring and the graphite rod of a dry cell are both pure carbon. Which statement about the two is correct? [1]

(a) Both conduct electricity well because both are pure carbon.
(b) They have the same physical properties but different chemical properties.
(c) They have the same chemical properties but very different physical properties.
(d) In both, every carbon atom is bonded to four other carbon atoms.

6. A packet of cooking oil says 'rich in unsaturated fatty acids'. What does 'unsaturated' mean here, and how do the carbon chains of such an oil differ from those of an animal fat such as ghee? [2]

7. What kind of compounds are detergents, chemically? Why are they used in shampoos and laundry powders? [2]

8. Ethanol meant for a paint factory is supplied with some methanol and a dye added to it. Why is this done, and what does methanol do in the body if it is swallowed? [2]

Every question original, written from NCERT, checked by a second reviewer · photocopy freely for your class

9. Three forms of pure carbon are described: X is the hardest substance known; Y is smooth, slippery and conducts electricity; Z is made of molecules of sixty carbon atoms shaped like a football. Identify X, Y and Z, and explain, from the arrangement of atoms, why X is hard and why Y conducts and is slippery. [3]

10. Name the following, and in each case state the naming rule you used: (i) $CH_3–CH_2–CH_2–CH_2–OH$ (ii) $CH_3–CO–CH_2–CH_2–CH_3$ (iii) $HC\equiv C–CH_2–CH_3$ [3]

11. Tetrachloromethane, CCl_4, boils at about 350 K and does not conduct electricity even as a liquid, while sodium chloride melts above 1000 K and conducts when molten. Explain each difference from the kind of bonding in the two compounds. [3]