Class 10 Science · Chapter 1: Chemical Reactions and Equations

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

Name _____ Class and section _____ Date _____

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1. Which of these changes forms a new substance? [1]

(a) A copper wire is bent into a ring.
(b) Water boils in a kettle.
(c) Slaked lime brushed on a wall turns into a hard, shiny layer over three days.
(d) A glass bottle shatters on the floor.

2. Asked to balance $Al + O_2 \rightarrow Al_2O_3$, a student writes $2Al + O_2 \rightarrow Al_2O_2$. The mistake is that the student has [1]

(a) changed the formula of the product instead of changing coefficients
(b) left out the state symbols
(c) used coefficients larger than needed
(d) written oxygen as a molecule

3. A week after a room is whitewashed, a flake of the shiny wall surface is dropped into dilute hydrochloric acid. It fizzes, and the gas turns lime water milky. The flake is mainly [1]

(a) calcium carbonate
(b) calcium hydroxide
(c) calcium oxide
(d) calcium chloride

4. At a building site in Jaipur, a mason pours water on lumps of quicklime in an iron drum. The water hisses and the drum becomes too hot to touch. The product and the nature of the reaction are [1]

(a) calcium hydroxide; exothermic
(b) calcium carbonate; exothermic
(c) calcium hydroxide; endothermic
(d) calcium oxide; endothermic

5. Which of the following is a word-equation? [1]

(a) $Zn + CuCl_2 \rightarrow ZnCl_2 + Cu$
(b) Zinc + Copper chloride → Zinc chloride + Copper
(c) $Zn(s) + CuCl_2(aq) \rightarrow ZnCl_2(aq) + Cu(s)$
(d) $Zn + Cu \rightarrow ZnCu$

6. Vegetable peels dumped in a school compost pit make the heap feel warm after a few days. (a) Name the type of reaction, in terms of energy, going on in the heap. (b) Name one reaction of the same type that takes place in your own body. [2]

7. Potassium hydroxide solution is added to dilute nitric acid until the acid is just used up. Write the balanced equation and name the type of reaction. [2]

8. A potted plant kept in a dark cupboard for a week makes no glucose, though it has water and carbon dioxide. (a) Use this to explain why photosynthesis is an endothermic reaction. (b) Write the equation for photosynthesis, with its conditions over the arrow. [2]

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9. Meera pours blue copper sulphate solution into a zinc tray by mistake. Next day the solution is colourless and a brown powder lines the tray. (a) Name the brown powder and the substance now dissolved in the solution, and say why they formed. (b) Write the balanced equation. (c) Would the solution have changed if it had been kept in a copper vessel? Give a reason. [3]

10. Three new iron nails are kept on a wet cloth in a kitchen for a week: nail X bare, nail Y coated with oil, nail Z painted. (a) Which nail is attacked, and what does its surface look like? (b) Name the process. (c) Nail X was in contact with two substances that the coatings kept away from nails Y and Z. Name the two. [3]

11. Test tube P holds zinc granules and test tube Q holds marble chips. Dilute hydrochloric acid is added to both, and gas bubbles out of each. (a) Name the gas from each tube. (b) Give one test that tells the two gases apart. (c) Write the balanced equation for the reaction in tube Q. [3]