

1. What is the significance of a balanced chemical equation?
2. Give the principles for the classification of organisms?
3. Compare fertilizers and manures.
4. List any three differences between the classes Aves and the Mammalia.
5. Define potential energy and give a few examples of objects possessing potential energy.
6. What is gravitational potential energy? On what does the change in potential energy of an object between two given points depend?
7. Balance the following chemical equations:
 - (a) $S + H_2SO_4 \rightarrow SO_2 + H_2O$
 - (b) $NH_4Cl + Ca(OH)_2 \rightarrow CaCl_2 + H_2O + NH_3$
 - (c) $H_2S + H_2SO_4 \rightarrow H_2O + S$
8. Why is irrigation important for crops? Describe in brief any four different kinds of irrigation systems adopted to supply water to agricultural lands.
9. Explain in brief the formation of ionic bonds with the help of an example.
10. Write the properties of ionic compounds.
11. What is SONAR? For what it is used? Explain its working in brief.
12. Define inertia. There are three solid balls, made up of aluminium, steel and wood of the same shape and volume. Which of them would have highest inertia? Why?
13. Apply the principle of law of conservation of linear momentum to obtain the expression for the recoil velocity of a gun.
14. A girl of mass 50 kg jumps with a horizontal velocity of 5 ms⁻¹ onto a stationary cart with frictionless wheels. The mass of the cart is 4 kg. What is her velocity when the cart starts moving? Assume that there is no external unbalanced force working in the horizontal direction.
15. Describe the production of X-rays, its properties and uses
16. Describe the properties of ionic compounds.
17. Describe the properties of covalent compounds.
18. Write the names of the compounds represented by the following formulae:
 - (a) NaBr
 - (b) Al₂O₃
 - (c) CaCO₃
19. Write a short note on Kingdom Fungi.
20. Differentiate between loudness and intensity of sound waves.