

1. Explain the difference between.
  - Distance and displacement.
  - Uniform and non-uniform motion.
  - potential energy and kinetic energy.
2. Prove that the kinetic energy of a freely falling object on reaching the ground is nothing but the transformation of its initial potential energy.
3. Determine the amount of work done when an object is displaced at an angle of  $30^\circ$  with respect to the direction of the applied force.
4. If an object has 0 momentum, does it have kinetic energy? Explain your answer.
5. Why is the work done on an object moving with uniform circular motion zero?
6. Write the steps in deducing the chemical formulae of the following compounds.
  - Sodium sulphate, potassium nitrate, ferric phosphate, calcium oxide, aluminium hydroxide.
7. Explain the monovalency of the element sodium.
8. What is meant by Unified Atomic Mass?
9. Explain with examples what is meant by a 'mole' of a substance.
10. Classify the acids according to their basicity and give one example of each type.
11. What is meant by neutralization? Give two examples from everyday life of the neutralization reaction.
12. Explain what is meant by electrolysis of water. Write the electrode reactions and explain them.
13. State the differences.
  - a. Acids and bases
  - b. Cation and anion
  - c. Negative electrode and positive electrode.
14. Write the characteristics of subkingdom Phanerogams.
15. Distinguish between monocots and dicots.
16. Write a paragraph in your own words about the ornamental plants called ferns.
17. Sketch, label and describe the Spirogyra.
18. Write the characteristics of the plants belonging to division Bryophyta
19. Sketch and label the figures of the following plants and explain them into brief.
  - Marchantia, Funaria, Fern, Spirogyra.
20. Explain the difference between a plane mirror, a concave mirror and a convex mirror with respect to the type and size of the images produced.
21. Why are concave mirrors used in solar devices?
22. Why are the mirrors fitted on the outside of cars convex?
23. Why does obtaining the image of the sun on a paper with the help of a concave mirror burn the paper?
24. If a spherical mirror breaks, what type of mirrors are the individual pieces?
25. What sign conventions are used for reflection from a spherical mirror?
26. What is an echo? What factors are important to get a distinct echo?
27. Explain giving scientific reasons.
  - The roof of a movie theatre and a conference hall is curved.
  - The intensity of reverberation is higher in a closed and empty house.
  - We cannot hear the echo produced in a classroom.
28. What is meant by radioactivity?
29. When is the nucleus said to be unstable?
30. Write about artificial food colours, the substances used in them and their harmful effects.
31. Where in the industrial field is radioactivity used?

32. Write down properties of teflon.
33. What type of colours will you use to celebrate ecofriendly Rang Panchami? Why?
34. Why has the use of methods like Teflon coating become more common?
35. Give scientific explanation.
  - a. Bleaching powder has the odour of chlorine.
  - b. The particles of powder are given an electric charge while spraying them to form the powder coating.
  - c. A certain type of ceramic tiles are fixed on the outer layer of a space shuttle.
36. What is meant by water of crystallization? Give examples of salts with water of crystallization, and their uses.