

Octahedral classes, kharadi
2nd floor, yashwant plaza, near bank of India,

Class 10 - Science
light and chemical equation

Maximum Marks: 70

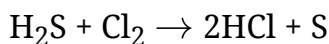
Time Allowed: 2 hours

General Instructions:

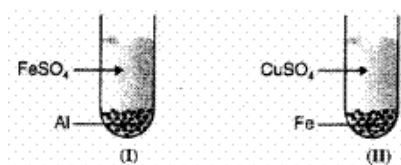
ANSWER ALL QUESTIONS

Section A

1. Oil and fat containing food items are flushed with nitrogen. Why? 1
2. On adding dilute HCl to copper oxide powder, the solution formed is blue-green. Predict the new compound formed which imparts a blue-green colour to the solution. 1
3. Why are food items packed in aluminium foils? 1
4. Define a chemical equation. 1
5. Define a displacement reaction. 1
6. Is hydrogen gas evolved on reaction of silver metal with dilute sulphuric acid (H_2SO_4) ? if not, why? 1
7. Indicate the oxidizing and reducing agent in the reaction. 1
$$2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$$
8. Write the balanced equation for the following chemical reaction. 1
Hydrogen + Chlorine \rightarrow Hydrogen chloride
9. What is a beam of light? 1
10. What is an optically rarer medium? 1
11. Define the term refraction of light. 1
12. What is a lens? 1
13. Give the cartesian sign convention for: 1
(a) height of a real image, and (b) height of a virtual image.
14. What is absolute refractive index? 1
15. If an object is placed at the focus of a concave mirror, where is the image formed? 1
16. Why do we store silver chloride in dark coloured bottles? 2
17. Indicate the oxidizing and reducing agent in the reaction. 2



18. The observation in I and II will be: 2



19. Identify the type of chemical reaction taking place 2

- on mixing a solution of potassium chloride with silver nitrate, an insoluble white substance is formed.
- on heating iron sulphate crystals strongly.

20. Give the characteristic tests for SO_2 . 2

21. During the reaction of some metals with dilute hydrochloric acid, following observation were made. 2

- The Reaction of sodium metal is found to be highly explosive.
- Some bubbles of a gas seen when lead (PB) is reacted with the acid.

Explain these observation giving suitable reasons.

22. Give one example of combustion reaction. Is it exothermic or endothermic? 2

23. Explain the following in terms of gain or loss of oxygen with two examples each: (a) Oxidation (b) Reduction. 2

24. Write balanced chemical equation for the following. 2

Barium chloride + Potassium sulphate \rightarrow Barium sulphate + Potassium chloride.

25. Name the type of reaction seen in the diagram below. Write the reaction for the Same. 2

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26. What is the relationship between the refractive index of two media? 2

27. Velocity of light in diamond is $1.2 \times 10^8 \text{ ms}^{-1}$ and in vacuum, it is $3 \times 10^8 \text{ ms}^{-1}$, what is refractive index of diamond ? 2

28. A pencil when dipped in water in a glass tumbler appears to be bent at the interface of air and water. Will the pencil to be bent to the same extent, if instead of water we use liquids like, kerosene or turpentine? Support your answer with reasons. 2

29. The magnification produced by a plane mirror is +1. What does this mean? 2

30. Name the type of mirror used in the following situations. Solar furnace. 2
Suppose your answer with reason.

31. Find the size, nature and position of image formed when an object of size 1 is 5

placed at a distance of 15 cm from a concave mirror of focal length 10 cm.

32. Define magnification of a spherical mirror. What will be the magnification in case of plane mirror? 5
33. What are the rules to form image of an object by concave lens? Form the images of an object when it is moved from infinity to the lens. 5
34. An object 2 cm high is placed at a distance of 16 cm from a concave mirror which produces a real image 3 cm high. 5
- (i) Find the position of the image.
- (ii) What is the focal length of mirror?
35. How are the images formed when an object is moved from infinity to the convex lens? 5