

**Sample/Pre-Board Paper 8**  
**Class X Term 1 Exam Nov -Dec 2021**  
**Science (086)**

**Time: 90 Minutes**

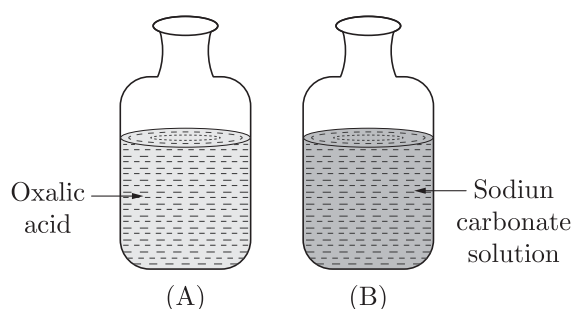
**General Instructions:**

1. The question paper contains three sections.
2. Section A has 24 questions. Attempt any 20 questions.
3. Section B has 24 questions. Attempt any 20 questions.
4. Section C has 12 questions. Attempt any 10 questions.
5. All questions carry equal marks.
6. There is no negative marking.

## Section A

Section – A consists of 24 questions. Attempt any 20 questions from this section.  
The first attempted 20 questions would be evaluated.

1. On burning magnesium ribbon in air, it is observed that it burns brightly leaving behind a ..... powder.  
(a) White  
(b) Green  
(c) Yellow  
(d) Black
2. When pH strip is dipped in each bottle, the colour shown by bottle *A* and *B* will be respectively:
4. Which one of the following does not happen during a chemical reaction?  
(a) Breaking of old chemical bonds and formation of new chemical bonds  
(b) An atom of one element change into those of another element to form new products  
(c) Formation of new substance with entirely different properties  
(d) A rearrangement of atoms takes place to form new products



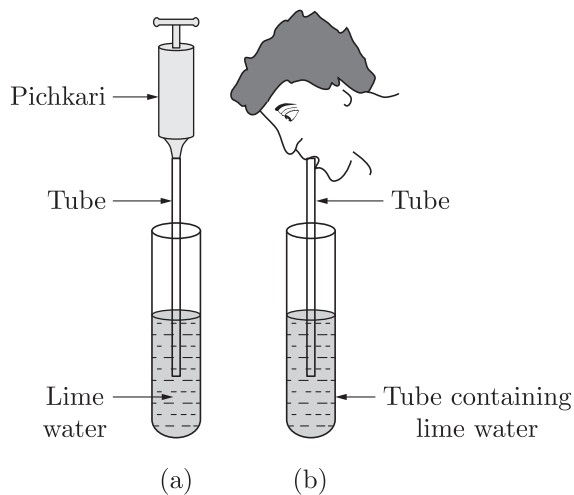
- (a) orange, blue  
(b) blue, orange  
(c) green, blue  
(d) blue, green
3. Which of the following statement(s) is/are correct regarding ionic compounds?
  1. They are good conductor of electricity at room temperature.
  2. They are always more soluble in water than petrol.
  3. They consist of ions.
  4. They generally have high melting and boiling points.(a) 1, 2 and 3  
(b) 1, 3 and 4  
(c) 2, 3 and 4  
(d) 1, 2 and 4
5. A solution reacts with crushed egg-shells to give a gas that turns lime-water milky. The solution contains  
(a) NaCl  
(b) HCl  
(c) LiCl  
(d) KCl
6. In which of the following chemical equations, the abbreviations represent the correct states of the reactants and products involved at reaction temperature?  
(a)  $2\text{H}_2(\text{I}) + \text{O}_2(\text{I}) \longrightarrow 2\text{H}_2\text{O}(\text{g})$   
(b)  $2\text{H}_2(\text{g}) + \text{O}_2(\text{I}) \longrightarrow 2\text{H}_2\text{O}(\text{I})$   
(c)  $2\text{H}_2(\text{g}) + \text{O}_2(\text{g}) \longrightarrow 2\text{H}_2\text{O}(\text{I})$   
(d)  $2\text{H}_2(\text{g}) + \text{O}_2(\text{g}) \longrightarrow 2\text{H}_2\text{O}(\text{g})$
7. The oxidation of oils or fats in a food is known as:  
(a) Corrosion  
(b) Rust  
(c) Rancidity  
(d) Oxidisation
8. Which of the following solutions has the lowest pH value?  
(a) 0.1 molar NaCl solution  
(b) 0.01 molar  $\text{NaHCO}_3$  solution  
(c) 0.001 molar  $\text{Na}_2\text{CO}_3$  solution  
(d) 0.01 molar NaOH solution



9. Which of the following will turn red litmus to blue?  
 (a) Vinegar  
 (b) Baking soda solution  
 (c) Soft drink  
 (d) Lemon juice

10.  $3\text{MnO}_2 + 4\text{Al} \longrightarrow 3\text{Mn} + 2\text{Al}_2\text{O}_3$   
 The reducing agent in the above equation is:  
 (a) Al (b) Mn  
 (c)  $\text{C}_2$  (d) Mn,  $\text{O}_2$

11. In the given activity, the lime water of which test tube will get milky faster?



- (a) Test tube (a)  
 (b) Test tube (b)  
 (c) Both test tube will take same time  
 (d) Can't say

12. Tiny pores present on the surface of the leaves are known as  
 (a) Chloroplasts (b) Xylem  
 (c) Guard cell (d) Stomata

13. The maintenance functions of living organisms must go on even when they are not doing  
 (a) Anything particular  
 (b) Sleeping  
 (c) Moving at constant speed  
 (d) Hibernation

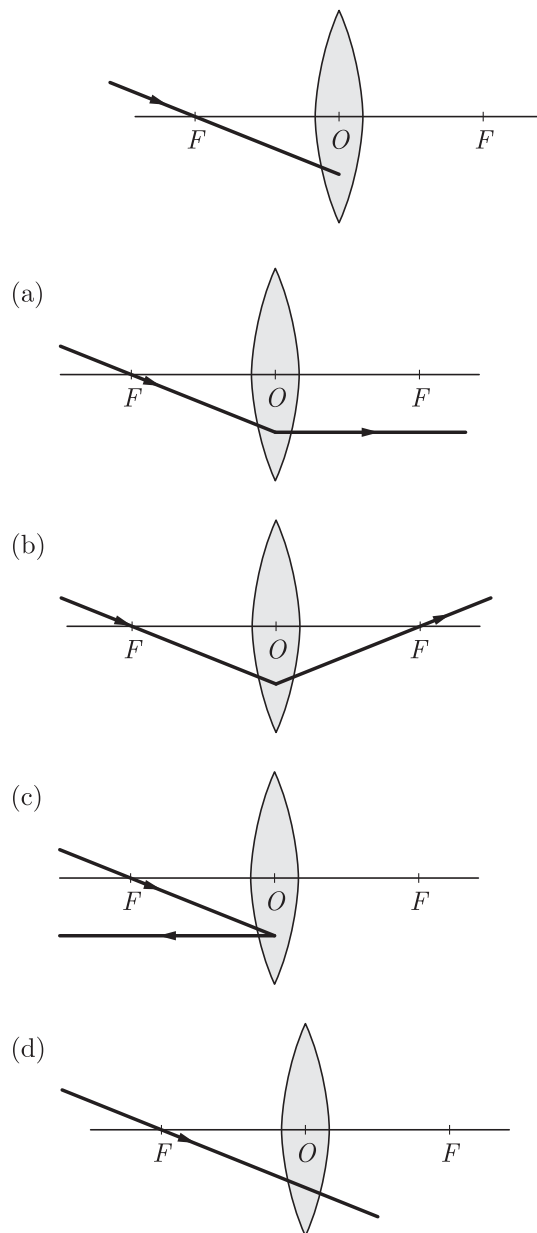
14. Tooth decay will NOT be prevented by .....  
 (a) regular brushing  
 (b) regular flossing  
 (c) regular visits to the dentist  
 (d) increasing the consumption of sucrose

15. The inner lining of the ..... has numerous finger-like projections called villi which increase the surface area for absorption.  
 (a) small intestine (b) large intestine  
 (c) stomach (d) pancreas

16. The food coming from the stomach is .....  
 (a) Alkaline (b) Acidic  
 (c) Neutral (d) None of these

17. Image formed by convex mirror is-  
 (a) Virtual (b) Real  
 (c) Enlarged (d) Inverted

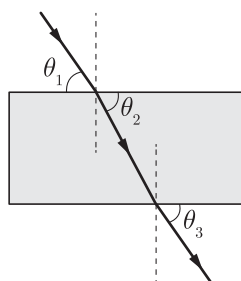
18. Which of the following ray diagrams is correct for the ray of light incident on a lens shown in Figure?



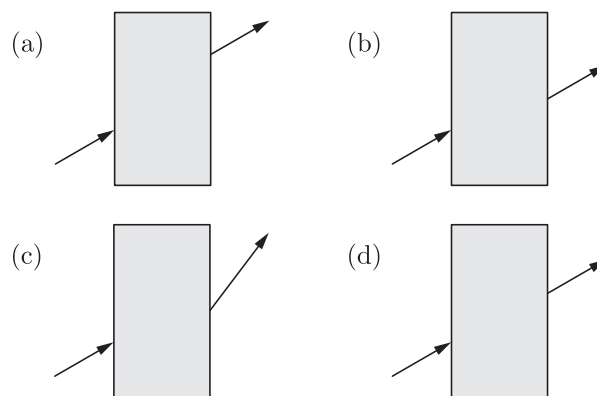
19. A ray of light incident normally on the mirror, retraces its path on reflection. Which of the following is true?  
 (a)  $\angle i = \angle r = 90^\circ$  (b)  $\angle i + \angle r = 90^\circ$   
 (c)  $\angle i - \angle r = 0^\circ$  (d)  $\angle i = \angle r = 0^\circ$

20. The inner shining surface of a steel spoon serves as a  
 (a) Plane mirror  
 (b) Concave mirror  
 (c) Convex mirror  
 (d) Any one of the above

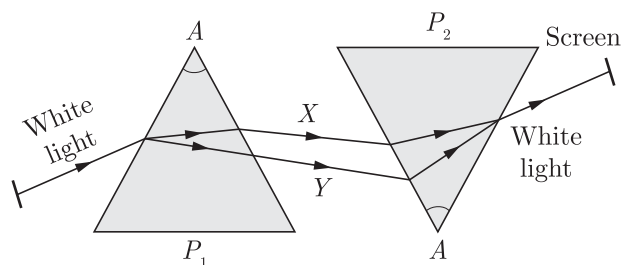
21. Which type of mirror is used by ENT specialists as a 'head mirror'?
- (a) Plane mirror (b) Convex mirror  
(c) Concave mirror (d) None of these
22. A student, while doing the experiment on tracing the path of ray of light passing through a rectangular glass slab, measured the three angles marked as  $\theta_1$ ,  $\theta_2$  and  $\theta_3$  in figure. His measurements could be correct if he were to find :



- (a)  $\theta_1 < \theta_2 < \theta_3$   
(b)  $\theta_1 < \theta_2$ , but  $\theta_1 = \theta_3$   
(c)  $\theta_1 > \theta_2 > \theta_3$   
(d)  $\theta_1 > \theta_2$  but  $\theta_2 = \theta_3$
23. Four students showed the following traces of the path of a ray of light passing through a rectangular glass slab. The trace most likely to be correct is that of student:



24.



Here  $X$  and  $Y$  indicates:

- (a) Green colour, violet colour  
(b) Red colour, violet colour  
(c) Violet colour, red colour  
(d) Green colour, red colour

## Section B

Section - B consists of 24 questions (Sl. No.25 to 48). Attempt any 20 questions from this section. The first attempted 20 questions would be evaluated.

25. Which of the following is true about the two statements?
- Statement I :** Reactivity of aluminium decreases when it is dipped in nitric acid  
**Statement II :** A protective layer of aluminium nitrate is formed when aluminium is dipped in nitric acid.
- (a) I is correct but II is incorrect  
(b) I is incorrect but II is correct  
(c) Both the statements are correct and II is also the correct explanation of I  
(d) Both the statements are correct but II is not correct explanation of I
26. The reaction that differs from the rest of the reaction given is-
- (a) formation of calcium oxide from limestone  
(b) formation of aluminium from aluminium oxide  
(c) formation of sodium carbonate from sodium hydrogen carbonate  
(d) formation of mercury from mercuric oxide

27. A highly reactive element  $X$  is stored under water. It readily reacts with oxygen of air to give a compound  $Y$  which dissolves in water. The aqueous solution of  $Y$  changes blue litmus solution to red. The element  $X$
- (a) Sodium  
(b) Sulphur  
(c) Phosphorous  
(d) Potassium

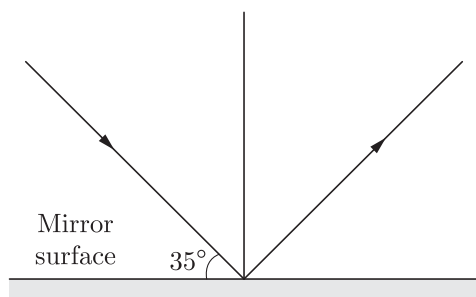
28. Which of the following are correctly matched?

1.	Mercury	liquid at room temperature
2.	Iodine	non-lustrous
3.	Lithium	low melting point
4.	Graphite	good conductor

- (a) 1, 2 and 3  
(b) 1, 2 and 4  
(c) 1, 3 and 4  
(d) 2, 3 and 4



44. The angle of incidence and angle of reflection in the following diagram.



- (a)  $45^\circ$ ,  $40^\circ$                       (b)  $55^\circ$ ,  $55^\circ$   
 (c)  $60^\circ$ ,  $60^\circ$                       (d)  $30^\circ$ ,  $30^\circ$
45. The refractive index of glass is  $3/2$ . The velocity of light in glass is  
 (a)  $3 \times 10^8$  m/s                      (b)  $2 \times 10^8$  m/s  
 (c)  $10^8$  m/s                              (d)  $1.33 \times 10^8$  m/s

46. In which of the following, the image of an object placed at infinity will be highly diminished and point sized?  
 (a) Concave mirror only  
 (b) Convex mirror only  
 (c) Convex lens only  
 (d) Concave mirror, convex mirror, concave lens and convex lens

47. A boy is standing in front of a plane mirror at a distance of 3 m from it. What is the distance between the boy and his image?  
 (a) 3 m                                      (b) 4.5 m  
 (c) 6 m                                      (d) None of these

48. Copper sulphate solution can be safely kept in a vessel made of :  
 (a) gold and silver                      (b) gold and lead  
 (c) lead and zinc                         (d) silver and zinc

## Section C

Section- C consists of three Cases followed by questions. There are a total of 12 questions in this section. Attempt any 10 questions from this section. The first attempted 10 questions would be evaluated.

### Case Based Questions: (49-52)

Metals react with non-metals by losing or gaining electrons. They have a give-and-take relation between them. Ionic compounds are usually solid and hard in nature. They are generally soluble in water and insoluble in solvent like petrol, kerosene, etc. The melting and boiling points of electrovalent compounds are high. In order to change the physical state of the electrovalent compounds (from solid to liquid to gas), a high temperature is needed to overcome the attractive forces.

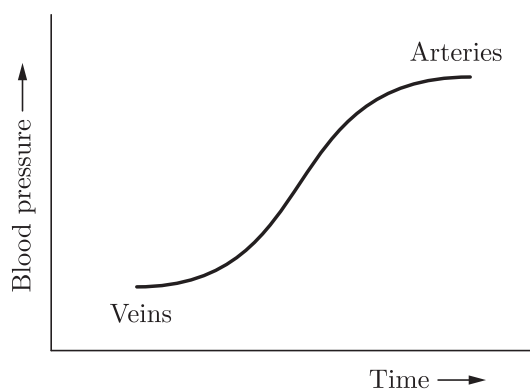
49. Which of the following properties is not generally exhibited ionic compounds?  
 (a) Electrical conductivity in molten state  
 (b) Electrical conductivity in solid state  
 (c) High melting and boiling points  
 (d) Solubility in water
50. Electrovalent compounds are usually solid and hard in nature. This is due to  
 (a) strong forces of attraction between the oppositely charged ions.  
 (b) weak forces of attraction between the oppositely charged ions.  
 (c) strong forces of attraction between the same charged ions.  
 (d) weak forces of attraction between the similarly charged ions.

51. Transfer of one or more valence electrons from a metal to non-metal takes place in case of  
 (a) chemical bonding                      (b) molecular bonding  
 (c) ionic bonding                            (d) covalent bonding
52. Calcium oxide is formed by losing of electrons to oxygen atoms, the calcium atom has the number of valence electrons as  
 (a) three                                      (b) one  
 (c) four                                        (d) two

### Case Based Questions: (53-56)

Arteries are the vessels which carry blood away from the heart to various organs of the body. Since the blood emerges from the heart under high pressure, the arteries have thick, elastic walls. Veins collect the blood from different organs and bring it back to the heart. They do not need thick walls because the blood is no longer under pressure, instead they have valves that ensure that the blood flows only in one direction. On reaching an organ or tissue, the artery divides into smaller and smaller vessels to bring the blood in contact with all the individual cells. The smallest vessels have walls which are one-cell thick and are called capillaries. Exchange of material between the blood and surrounding cells takes place across this thin wall. The capillaries then join together to form veins that convey the blood away from the organ or tissue.

53. What is importance of thin walls of blood capillaries?
- Thin walls of blood capillaries provide them protection.
  - Exchange of materials between the blood and surrounding cells take place across the thin walls of blood capillaries.
  - Thin walls of blood capillaries help on smooth flow of blood.
  - All of the above.
54. Write two differences between arteries and veins.
- Arteries are blood vessels while veins are not.
  - Arteries have thick walls while veins have thin walls.
  - Arteries have valves while do not have valves.
  - All of the above.
55. What is the function of valves in veins?
- Valves ensure the unidirectional flow of blood.
  - Valves increase the oxygen carrying capacity of the blood.
  - Valves protect the veins from outer shocks.
  - Valves withstand the high pressure of blood in veins.
56. Which blood vessels have high blood pressure and what they have to withstand this high pressure?
- Both arteries and veins have same pressure of blood and they are thick walled vessels.
  - Arteries have high blood pressure and they have elastic and thick walls to withstand this high pressure.
  - Veins have high blood pressure and they have to valves to withstand this high pressure.
  - None of the above.



### Case Based Questions: (57-60)

When a beam of light is incident from a homogeneous medium on a shiny surface of another medium, a part of it is returned back into the same medium. The return of light into the same medium after striking a surface is called reflection. The laws of reflection are following.

Let us recall these laws:

- The angle of incidence is equal to the angle of reflection, and
- The incident ray, the normal to the mirror at the point of incidence and the reflected ray, all lie in the same plane.

These laws of reflection are applicable to all types of reflecting surfaces including spherical surfaces. You are familiar with the formation of image by a plane mirror. What are the properties of the image? Image formed by a plane mirror is always virtual and erect. The size of the image is equal to that of the object. The image formed is as far behind the mirror as the object is in front of it. Further, the image is laterally inverted.

57. What is magnification produced by the plane mirror if the size of object is 24 cm?
- 24
  - +24
  - 1
  - +1
58. If the angle of incidence of light on mirror is  $30^\circ$ . The value of angle of reflection is
- $30^\circ$
  - $45^\circ$
  - $60^\circ$
  - $90^\circ$
59. The phenomenon of bouncing back of a ray of light after striking to a surface is called .....
- Dispersion of light
  - Scattering of light
  - Refraction of light
  - Reflection of light
60. Which of the following shows the phenomenon of reflection?
- A concave mirror
  - A plane mirror
  - A convex mirror
  - All of these

## SAMPLE PAPER - 3 Answer Key

Paper Q. no.	Correct Option	Chapter no	Question Bank Q. no.
1	(a)	Ch-1	59
2	(a)	Ch-2	71
3	(c)	Ch-3	41
4	(b)	Ch-1	7
5	(b)	Ch-2	2
6	(d)	Ch-1	75
7	(c)	Ch-1	78
8	(a)	Ch-2	73
9	(b)	Ch-2	64
10	(a)	Ch-1	106
11	(b)	Ch-4	67
12	(d)	Ch-4	34
13	(a)	Ch-4	2
14	(d)	Ch-4	65
15	(a)	Ch-4	64
16	(b)	Ch-4	63
17	(a)	Ch-5	70
18	(a)	Ch-5	56
19	(d)	Ch-5	89
20	(b)	Ch-5	90
21	(c)	Ch-5	91
22	(b)	Ch-5	120
23	(b)	Ch-5	121
24	(b)	Ch-6	28
25	(c)	Ch-2	52
26	(b)	Ch-2	57
27	(c)	Ch-3	104
28	(c)	Ch-3	112
29	(d)	Ch-2	18
30	(c)	Ch-3	71
31	(d)	Ch-2	171

Paper Q. no.	Correct Option	Chapter no	Question Bank Q. no.
32	(c)	Ch-1	151
33	(c)	Ch-4	224
34	(b)	Ch-6	184
35	(b)	Ch-2	13
36	(c)	Ch-1	61
37	(b)	Ch-4	159
38	(b)	Ch-4	184
39	(a)	Ch-5	7
40	(d)	Ch-5	22
41	(b)	Ch-4	199
42	(a)	Ch-4	83
43	(a)	Ch-5	164
44	(b)	Ch-5	174
45	(b)	Ch-5	3
46	(d)	Ch-5	58
47	(c)	Ch-5	97
48	(a)	Ch-3	18
49	(b)	Ch-3	183
50	(a)	Ch-3	184
51	(c)	Ch-3	185
52	(d)	Ch-3	186
53	(b)	Ch-4	253
54	(b)	Ch-4	254
55	(a)	Ch-4	255
56	(b)	Ch-4	256
57	(d)	Ch-5	217
58	(a)	Ch-5	218
59	(d)	Ch-5	219
60	(d)	Ch-5	220