

# GENERAL SCIENCE , Paper – I

(Physical Sciences)

(English Version)

**Time: 3 Hours**

**Parts A and B**

**Maximum Marks : 50**

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## Instructions :

1. The Question paper contains 4 printed pages in Part-A and also in Part-B.
2. ½ hour is allotted for reading the question paper.
3. Answer the questions under Part-A on a separate answer booklet.
4. Write the answers to the questions under Part-B on the question paper itself and attach it to the answer booklet of Part-A.

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**Time : 2 hours**

**PART-A**

**Max. Marks : 35**

**Section - I**

**5 x 2 = 10**

## Note :

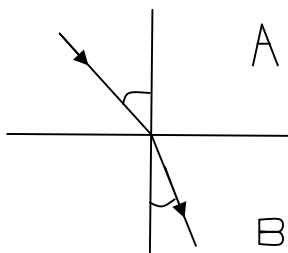
1. Answer any five questions choosing at least two from each group.
2. Each question carries two marks.

### Group -A

1. Write the differences between *mist* and *fog*.
2. Write English Alphabet. Draw the mirror images of the letters, if we assume to place a plane mirror at a side of letter.

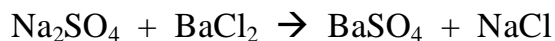
Ex: P | Q

3. What is the value of refractive index of diamond. Find the velocity of light through diamond?
4. According to the given figure, which is the denser medium? How can you support your answer?

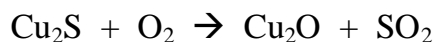


## Group -B

5. Name the reactants and products in the following chemical equation.



6. Balance the following chemical equation. Follow the steps involved in balancing a chemical equation.



7. Is  $p^H$  changes tooth decay? Explain.

8. Name two salts and write their formulae which possesses water of crystallization.

## Section - II

4 x 1 = 4

**Note :**

1. Answer any four questions from the following.
2. Each question carries one mark.

9. How much energy is required to turn 1 gm of ice at  $0^\circ\text{C}$  into 1 gm of water at  $0^\circ\text{C}$ ?

10. How will the image be in convex mirror, if we place the object at infinite distance from the pole of the mirror?

11. Determine the refractive index of medium 'A', if the critical angle is  $45^\circ$ .

12. What are new substances formed due to decomposition of Lead nitrate?

13. Which metal is used in the manufacture of Diwali crackers?

14. How can we understand this sign, which is used to print on containers

containing acids.

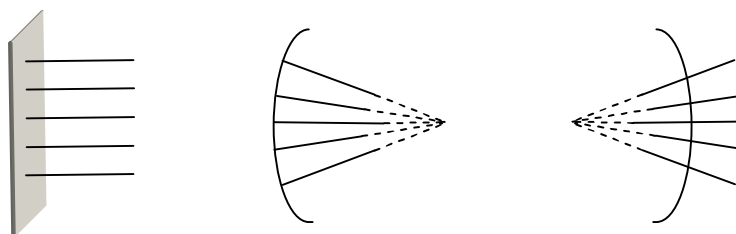


**Note :**

1. Answer any four questions choosing at least two from each group.
2. Each question carries four marks.

**Group -A**

15. Suggest an activity to prove the average kinetic energy of the molecules is directly proportional to the absolute temperature of the substances?
16. What is meant by focus of a concave mirror? Explain with a neat diagram. If an incident ray passes through the focus, then what is the path of reflected ray? Draw a diagram to show it?
17. Observe the figures. Compare these figures with different mirror. And interpret the beam of light rays with respect to mirrors.



18. Define the following terms.

- |                      |                               |
|----------------------|-------------------------------|
| (a) Refractive index | (b) Relative refractive index |
| (c) Critical angle   | (d) Total internal reflection |

**Group -B**

19. Latha take some quantity of powder of a substance in a test tube. Heated it with spirit burner. A gas was liberated. She send the gas into another test tube. The colour of solution in the second test tube turned into milk white.
- (a) Which substance was heated?
  - (b) Which gas is liberated?
  - (c) What was the solution taken in second test tube?
  - (d) Which type of chemical reactions involved in Experiment?

20. A light yellow colour substance (some quantity) on a watch glass is put in the sun light. It changes into gray colour powder.

- What is the light yellow colour substance?
- What is the gray colour substance?
- Which type of chemical reaction it is?
- Write the chemical equation for the reaction.

21. Write the formulae of the following salts.

- Sodium sulphate
- Ammonium chloride

Identify the acids and bases for which the above salts are obtained. Also write chemical equations for the reactions between such acids and bases.

Which type of chemical reactions they are?

22. Fill the following table of results of reactions between some substances (acids, bases, neutral substances) and indicators.

Indicator → Substance ↓	Litmus blue paper	Litmus red paper	Methyl Orange solution	Phenaphtalene solution
HCl		No reaction		
NaOH			Turned into Pink	
Tomato juice				No reaction
Soap water		Turned into red		

#### Section - IV

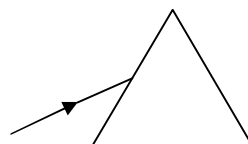
1 x 5 = 5

**Note :**

- Answer any one question from the following.
- Each question carries five marks.

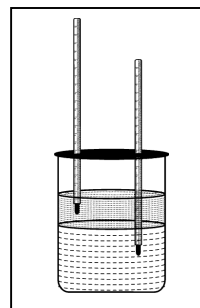
23. Draw a neat diagram showing acid solution conducts electricity. Also label the diagram.

24. If a triangular shaped prism is placed on a paper. Draw the refracted rays and emitted rays by taking an incident ray with any angle. Refracted rays should be drawn according to the normal drawn to the interface.





3. Sreenu took 100 ml of water at 60°C in a beaker. He poured 100 ml of coconut oil at 40°C on the water. He arranged two thermometers as shown in figure. Specific heat values of coconut oil and water are different. At equilibrium state .....
- (A) Temperature are same in both thermometers  
 (B) Temperature is more in coconut oil  
 (C) Temperature is more in water  
 (D) Temperature in both thermometers is 30°C
4. The laws of reflection of light are valid for
- (A) Plane mirrors only (B) Convex mirrors only  
 (C) Concave mirrors only (D) All reflective surfaces
5. Refractive index of Kerosene
- (A) 1.65 (B) 1.33  
 (C) 1.31 (D) 1.44
6. Silver articles turns into black due to formation of
- (A) Silver chloride (B) Silver sulphate  
 (C) Silver oxide (D) Silver sulphide
7. Combination of bronze is
- (A) Zn + Cu (B) Fe + Zn  
 (C) Sn + Cu (D) Cr + Fe
8. Highly inflammable gas
- (A) Oxygen (B) Carbon di oxide  
 (C) Nitrogen (D) Hydrogen
9. Hydronium ion
- (A) H<sup>+</sup> (B) H<sub>3</sub>O<sup>+</sup>  
 (C) NH<sub>4</sub><sup>+</sup> (D) OH<sup>-</sup>





III. Match the following by writing the letter of the correct answer in the brackets, choosing from **Group-B**. 10 x ½ = 5

Each question carries ½ marks.

**PHYSICS**

(i)	Group-A		Group-B
21.	$i = r$	[    ]	(A) Refraction
22.	$i \neq r$ (more chances)	[    ]	(B) Total internal reflection
23.	$i > C$	[    ]	(C) Reflection
24.	$i > r$	[    ]	(D) Critical angle
25.	$i < r$	[    ]	(E) Refraction into denser medium
			(F) Refraction into rarer medium

**CHEMISTRY**

(i)	Group-A		Group-B
26.	Antiseptic	[    ]	(G) Sodium chloride
27.	Cleaning agent	[    ]	(H) Bleaching powder
28.	Disinfection	[    ]	(I) Washing soda
29.	Plaster for fractures	[    ]	(J) Plaster of Paris
30.	Common salt	[    ]	(K) Baking soda
			(L) Caustic soda

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