

Andhra Pradesh — Summative Assessment 1 (SA1), 2026-27
Class X — General Science Paper I — Physical Science
Answer Key — Set 1

For: Model Paper 1

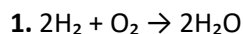
Max. Marks: 50

Notes for valuers

- Value points are given for descriptive answers; accept any answer that covers the same ideas in the student's own words.
- For diagrams: correct diagram 2 marks, labels/arrows 2 marks (4-mark question).

SECTION – I

8 × 1 = 8



2. B) 7

3. Sodium (potassium is also acceptable)

4. Alcohol group, $-\text{OH}$ (hydroxyl)

5. $f = R/2 = 20/2 = 10 \text{ cm}$

6. Presbyopia

7. B) ohm metre ($\Omega \text{ m}$)

8. $3.6 \times 10^6 \text{ J}$

SECTION – II

3 × 2 = 6

9. Magnesium ribbon gets a coating of magnesium oxide (and dirt) when kept in air.

This layer prevents it from burning readily, so it is cleaned to expose fresh metal.

10. Structural isomers are compounds with the same molecular formula but different structures. *[definition 1, structures 1]*

Butane (C_4H_{10}): n-butane $\text{CH}_3\text{—CH}_2\text{—CH}_2\text{—CH}_3$ and iso-butane (2-methylpropane) $\text{CH}_3\text{—CH}(\text{CH}_3)\text{—CH}_3$.

11. Sunlight is scattered by the very small molecules of air.

Blue light (shorter wavelength) is scattered much more than red, so the scattered blue light reaches our eyes and the sky looks blue.

SECTION – III

3 × 4 = 12

12. (A) Ray diagram (object between C and F of a concave mirror): *[diagram 2, rays/arrows 1, image nature 1]*

- A ray parallel to the principal axis reflects through F.
- A ray through C (or F) reflects back along itself (or parallel to the axis).
- Image is formed beyond C — real, inverted and magnified (enlarged).

12. (B) Neat diagram of the human eye with labels:

cornea, iris, pupil, eye lens, ciliary muscles, aqueous humour, vitreous humour, retina, optic nerve (any 4 labels).

13. Any four:

[1 each]

1. They are solids and somewhat hard (strong force of attraction between ions); usually brittle.
2. They have high melting and boiling points.
3. They are generally soluble in water and insoluble in kerosene, petrol, etc.
4. They conduct electricity in molten state or in aqueous solution, but not in solid state.

14. i) $I = P/V = 100/220 = 0.45 \text{ A}$ (5/11 A)
 ii) $R = V^2/P = (220 \times 220)/100 = 484 \Omega$
 iii) $E = P \times t = 0.1 \text{ kW} \times 5 \text{ h} = 0.5 \text{ kWh}$
 iv) $\text{Cost} = 0.5 \times ₹6 = ₹3$

[1 each]

SECTION – IV

3 × 8 = 24

15. (A) Aim: to study refraction of light through a rectangular glass slab.

Materials: glass slab, white sheet, drawing board, pins, protractor, scale.

Procedure: Place the slab on the sheet and draw its outline ABCD. Draw a line EF on AB at an angle.

Fix two pins P and Q on EF. Look through the opposite face CD and fix pins R and S so that they appear in line with the images of P and Q. Remove the slab, join RS to meet CD at H, and join FH.

Observation: EF is the incident ray, FH the refracted ray and HS the emergent ray. The ray bends towards the normal on entering glass and away from the normal on leaving it.

The emergent ray is parallel to the incident ray but shifted sideways — this shift is the lateral displacement (shown in the diagram).

Marks: aim/materials 1, procedure 3, diagram 2, observation 2.

15. (B) $h = +4 \text{ cm}$, $u = -25 \text{ cm}$, $f = +10 \text{ cm}$

[formula 2, v 2, m & h' 2, nature 2]

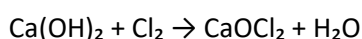
$$1/v - 1/u = 1/f \rightarrow 1/v = 1/10 + 1/(-25) = 1/10 - 1/25 = 3/50 \rightarrow v = +50/3 \approx +16.7 \text{ cm}$$

$$m = v/u = (50/3)/(-25) = -2/3 \approx -0.67$$

$$h' = m \times h = -2/3 \times 4 \approx -2.67 \text{ cm}$$

Image is formed 16.7 cm behind the lens (other side); real, inverted and diminished, 2.67 cm high.

16. (A) Bleaching powder: made by passing chlorine through dry slaked lime.



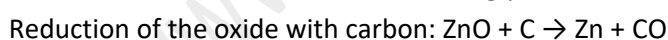
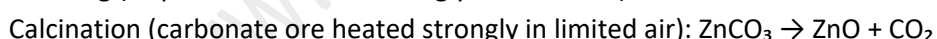
Uses (any two): bleaching cotton/linen and wood pulp; disinfecting drinking water; oxidising agent in industries.



Uses (any two): making baking powder; antacid; in soda-acid fire extinguishers; cooking.

Marks: 2 equations × 2, uses 2 + 2.

16. (B) Ores of medium-reactivity metals (Zn, Fe, Pb) are first converted to oxides.



(Metal oxides can also be reduced by more reactive metals, e.g. aluminium.)

Marks: explanation 2, each equation 2.

17. (A) Let R_1 , R_2 , R_3 be connected in parallel across a potential difference V .

The p.d. across each resistor is the same, V . Total current $I = I_1 + I_2 + I_3$.

By Ohm's law, $I_1 = V/R_1$, $I_2 = V/R_2$, $I_3 = V/R_3$, and $I = V/R_p$.

$$V/R_p = V/R_1 + V/R_2 + V/R_3$$

$$\therefore 1/R_p = 1/R_1 + 1/R_2 + 1/R_3$$

Marks: circuit diagram 2, steps 4, result 2.

17. (B) Dispersion: the splitting of white light into its seven component colours (VIBGYOR) is called dispersion.

Activity: Take a thick cardboard with a narrow slit and let a thin beam of sunlight fall on a glass prism. Place a white screen on the other side.

Observation: A band of seven colours — violet, indigo, blue, green, yellow, orange, red — is seen on the screen (spectrum).

Reason: different colours bend through different angles; red bends least and violet most.

Marks: definition 2, activity 2, diagram 2, explanation 2.

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