

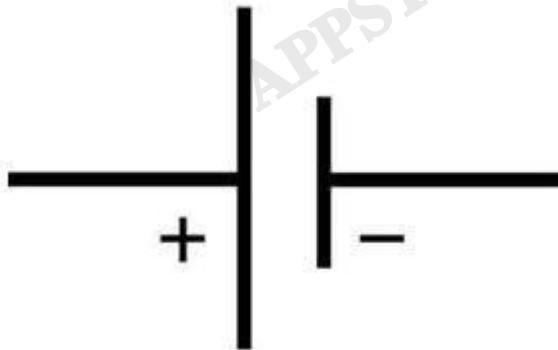
**APPSTF, Dr. B R AMBEDKAR KONASEEMA
Self Assessment Model Paper - 2 (2025-26)**

**X Physical Science
PRINCIPLES OF VALUATION**

SECTION -1

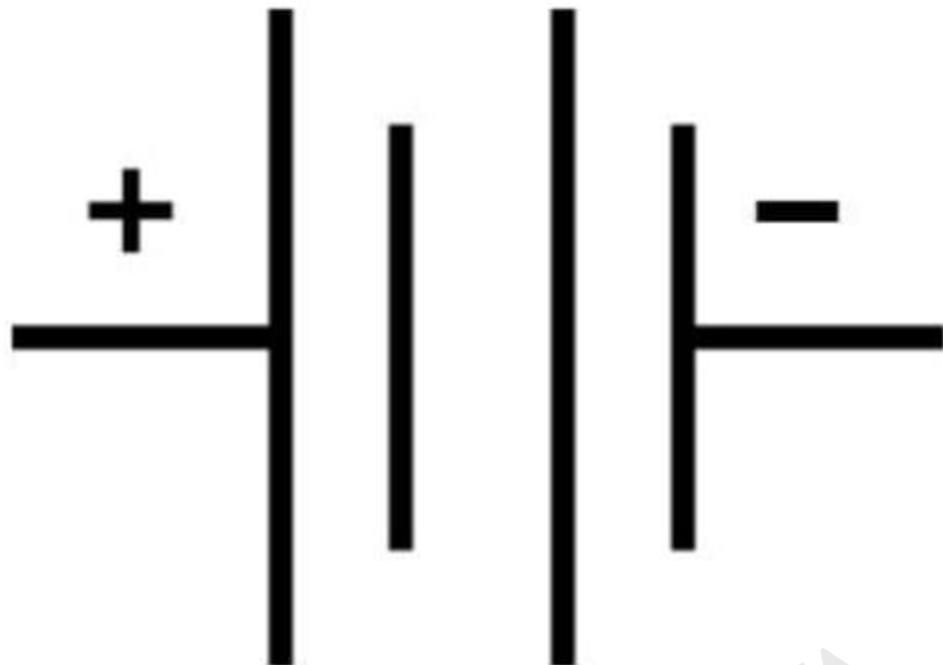
I. Answer the following questions. 7×1=7

1. The least distance of distinct vision for a young adult with normal vision is about -----
A) 25cm
2. Write the chemical equation useful to join rail tracks
A) $\text{Fe}_2\text{O}_3 + 2\text{Al} \Rightarrow 2\text{Fe} + \text{Al}_2\text{O}_3 + \text{Heat}$
3. Suggest one method to prevent corrosion of metals
A) painting, oiling , electroplating etc.
(Any one method)
4. The commercial unit of electric energy is
A) (d) or Kilowatt hours
5. Food cans are coated inside with tin but not with zinc. Why?
A) Tin is less active than zinc
6. The change in focal length of eye lens is caused by the action of the ---- muscles in human eye
A) ciliary
- 7) Draw the symbol of a battery used in electric circuits



A)

OR



SECTION -II

Answer all the following questions. $4 \times 2 = 8$

8) what is meant by dispersion of light? Give one example.

A) The splitting of white light into its component colours is called dispersion.

Ex:- formation of Rainbow

or any other example

9) write any two properties of ionic compounds.

A) 1) Ionic compounds are solids

2) have high melting points

3) high boiling point

4) soluble in water

Or any other properties

(Any two)

10) Why is the colour of the clear sky blue?

A) 1) Scattering of light is the reason behind the blue colour of sky

2) When sunlight passes through the atmosphere the fine particles in air scatter the blue colour more strongly than red.

11) predict the products in the following reactions

a) When ferrous sulphate reacts with copper

A) No products are formed

b) When copper sulphate reacts with iron

A) Ferrous sulphate and copper

SECTION -III

Answer all the following questions. $3 \times 4 = 12$.

12. A person needs a lens of power - 5.5 diopters for correcting his distinct vision. For correcting his near vision he needs a lens of power + 1.5 diopter. What is the focal length of the lens required for correcting

i) distinct division and ii) near vision

Ans: $p = -5.5 \text{ D}$

$$f = 100 / p \text{ cm}$$

$$= 100 / (-5.5)$$

$$= -18.18 \text{ cm}$$

Negative sign indicates concave lens.

Near vision:

$$p = +1.5 \text{ D}$$

$$f = 100 / p \text{ cm}$$

$$= 100 / (1.5)$$

$$f = +66.67 \text{ cm}$$

13. Define the following.

a) Electric current b) Resistivity

Ans:

a) Electric current : The net charge flows across any cross section of a conductor in unit time is called electric current.

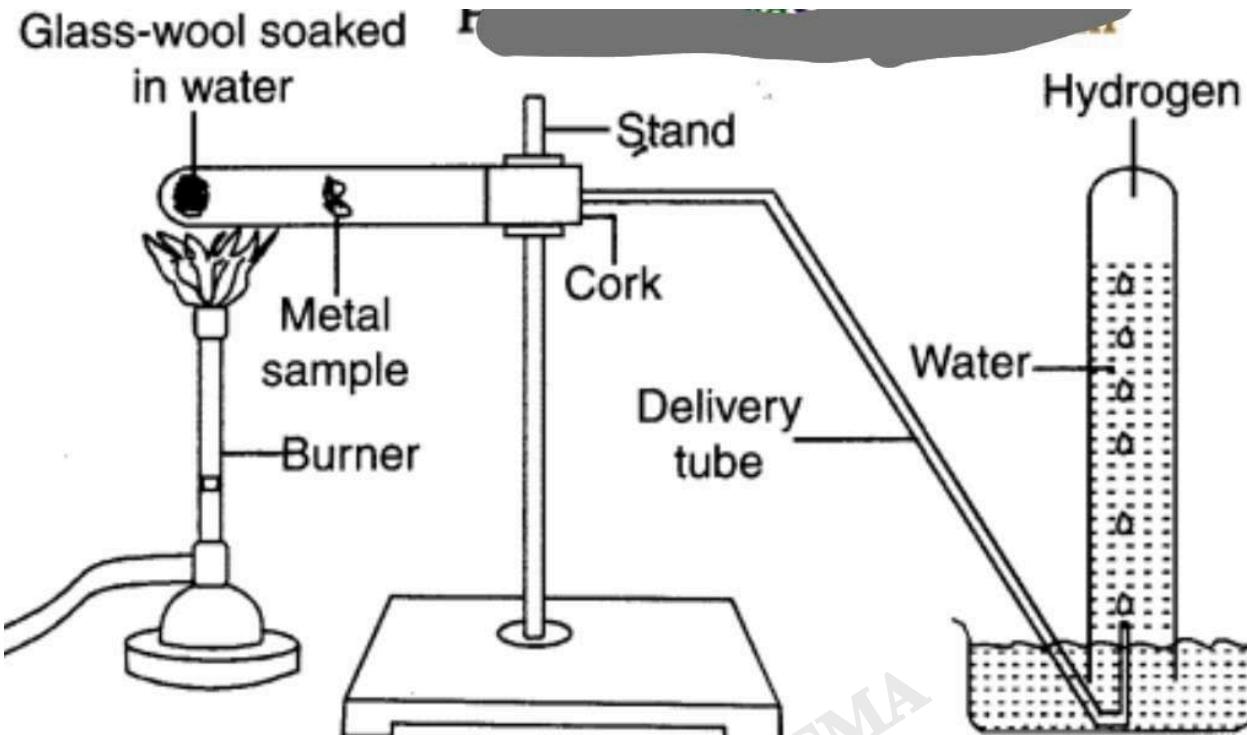
$$I = q/t$$

The SI unit of electric current is ampere.

b) Resistivity : Resistivity is a material's intrinsic property that measures how strongly it resists the flow of electric current.

14. Draw a neat diagram to show the reaction of metals with steam.

Ans :



SECTION -IV

Answer the following question. $1 \times 8 = 8$.

15A) Teja is not able to see the letters clearly far from her. Identify the eye defect she has been suffering from and how can you rectify it? Explain.

Ans : Teja has been suffering from myopia.

⇒ Myopia people cannot see distant (far) objects clearly.

⇒ They can see nearby objects clearly.

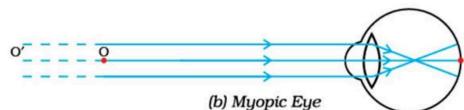
⇒ This defect is also called nearsightedness.

⇒ The image will be formed before the retina.

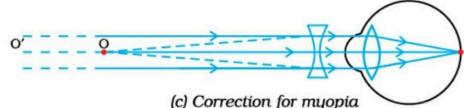
⇒ This defect may arise due to excessive curvature of the eye lens and elongation of the eyeball.

⇒ Concave lens is used to correct Myopia

⇒ The focal length of the lens used for correction is $f = -D$.



(b) Myopic Eye



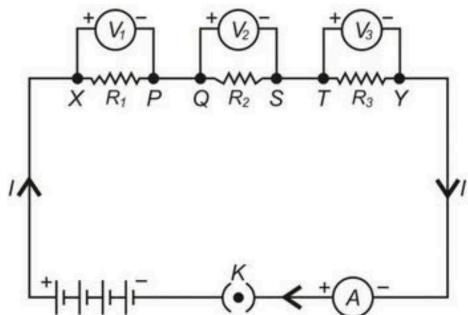
(c) Correction for myopia

(OR)

15B) Derive an expression for the equivalent resistance of three resistors connected in series in an electric circuit.

Ans :

In series connection of resistors there is only one path for the flow of current in the circuit . Hence the current in the circuit is equal to I



On applying Ohm's law to each resistor ,

$$V_1 = IR_1$$

$$V_2 = IR_2$$

$$V_3 = IR_3$$

Let R be the equivalent resistance of the combination of resistors in series.

Also,

$$V = IR_s$$

$$V = V_1 + V_2 + V_3$$

$$IR_s = IR_1 + IR_2 + IR_3$$

$$IR_s = I(R_1 + R_2 + R_3)$$

$$R_s = R_1 + R_2 + R_3$$

The resistance of the equivalent resistance in series combination is equal to the sum of their individual resistance.

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