SECTION-I

1. Which one of the following is a less reactive metal?
A. B or Gold

2. Write the formula of the immediate next number to C_4H_{10} in its homologous series.
A. C_5H_{12}

3. Given below is the thermite reaction.
$Fe_2O_3 + 2Al \Rightarrow 2Fe + Al_2O_3 + Heat.$
What substance is reduced in the reaction?
A. Fe_2O_3
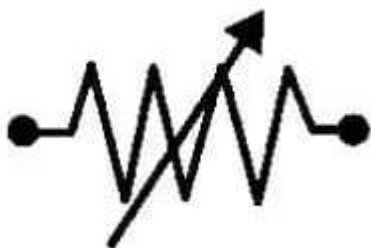
4. Give an example for an oxidation reaction.
A. $C + O_2 \Rightarrow CO_2$
or any other relavent example

5.The splitting of white light into its component colours is called… .
A. Dispersion of light.

6. Draw the symbol of Rheostat.

A.
7.What is the use of Fuse in electric circuits?
A. To protect elecrical appliances from damage due to high voltage current.

8. If two resistors of 2Ω each were given to you, how do you get 1Ω as resultant resistance by using them?

A. They can be connected in Parallel connection

9. Predict the colour of pH paper.

a) when dipped in a common Salt solution.

A) Green or greenish yellow

b) When dipped in lemon juice.

A) Orange red

10. Give one example each of a compound containing:

i) -OH group   ii) -COOH group

A.i) C_2H_5OH

**   ii) CH_3COOH**
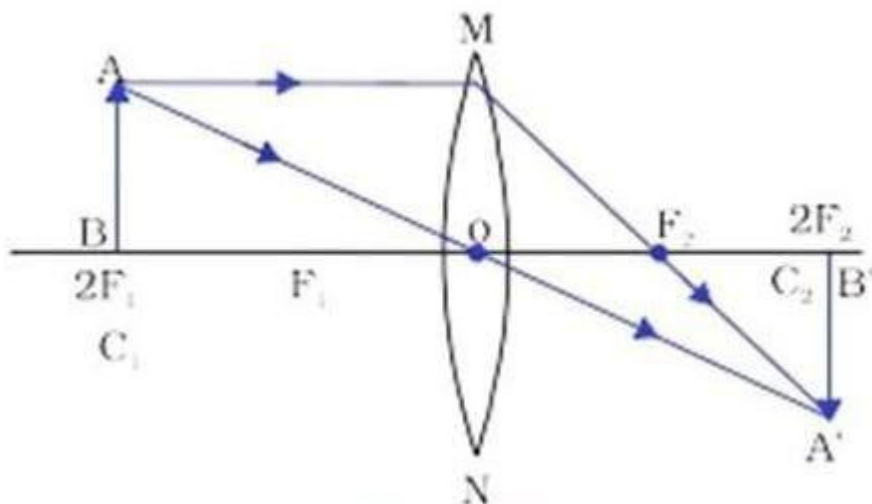
Or any other example.

11. Predict and write the path of light ray after refraction at the concave lens for the given two cases.

A) i) Passing parallel to principal axis
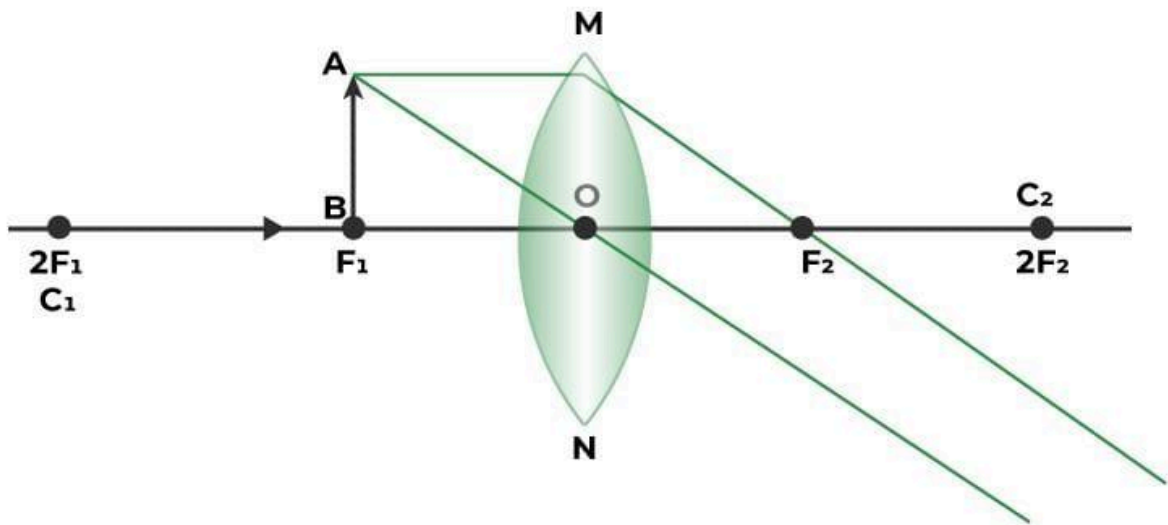
ii) Passing through optic centre in straight path.
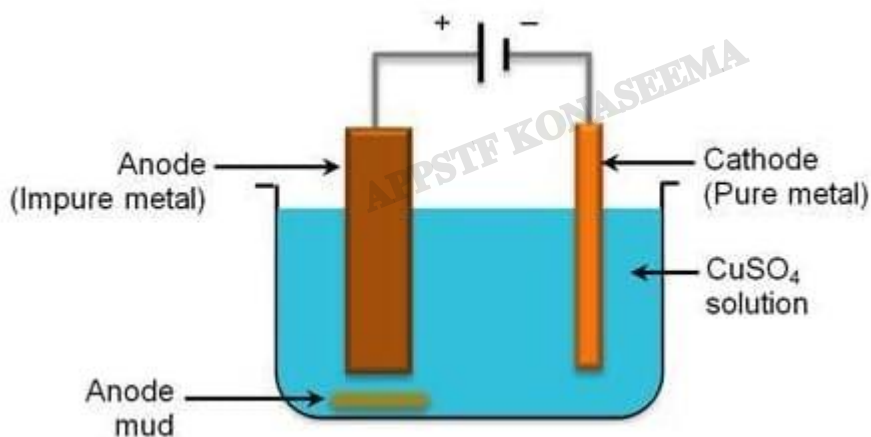
12.Draw any one of the following diagrams.

A) i)

ii)

(OR)

B)

13. Write any two uses of alloying? Give to examples of alloys.
A. To prevent corrosion
   To increase resistivity
   To increase durability
Ex: Brass, Bronze.

14. "The far point of a myopic person is at 80 cm in front of his eye. "
Answer the following questions.
1.Prescribe a suitable lens required to correct this defect .

A) Concave lens

2.What is the focal length of required lens ?

A. f = (-80)cm

3.What is the formula of power of lens?

A. P = 1/ f   or P =100/f(cm)

4.find the power of prescribed lens.

A. P= 100/(-80)

= -1.25 D

SECTION-IV

15A) Lakshmi is not able to see the letters in news paper clearly. Identify the eye defect she has been suffering from and how can it be rectified explain.

A) Lakshmi has been suffering from hypermetropia.

⇒Hypermetropia people cannot see nearby objects clearly.

⇒ They can see distant objects clearly.

⇒ This defect is also called farsightedness.

⇒Image will be formed beyond the retina.

⇒ This defect may arise due to the focal length of the eye lens being too long or the eyeball becoming too small.

⇒Convex lenses are used to correct hypermetropia.

⇒ The focal length of the lens used for correction is f = 25d / d-25.

N   N'

(b) Hypermetropic eye

N' N

(b) Correction for Hypermetropic eye
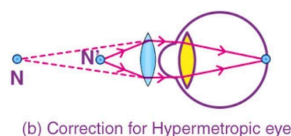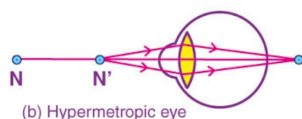
15 B) Mention any four differences between Convex lens and Concave Lens.

A.

| Convex lens	Concave lens
1. It is converging lens	1.It is diverging lens
2.Used to correct hypermetropia	2.Used to correct myopia
3.It is thick in the middle.	3.It is thin at middle
4.It forms both erect and inverted image	4.It forms only erected image
5.It forms both real and virtual image	5.It forms only virtual image

16. A) State and explain four types of chemical reactions with an example each.

A. 1.Combination reaction: A reaction in which a single product is formed from two or more reactants is known as a combination reaction.

Ex:$CaO + H_2O \Rightarrow Ca(OH)_2$

2.Decomposition reaction: A reaction in which a single substance decomposes to give two or more substances is known as decomposition reaction.

Ex: $CaCO_3 \overset{heat}{\Rightarrow} CaO + CO_2$
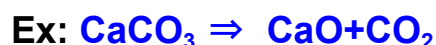
3) Displacement reaction: The reaction in which an element has displaced or removed another element from the molecule is called displacement reaction.

Ex:$Fe + CuSO_4 \Rightarrow FeSO_4 + Cu$

4) Double displacement reaction: The reaction in which there is an exchange of ions between the reactants are called double displacement reactions.

Ex: $Na_2SO_4 + BaCl_2 \rightarrow BaSO_4 + 2NaCl.$

16B) Define miscelle. Explain the cleaning action of soap.

A. Micelles are spherical structures formed by the self-assembly of molecules in an aqueous solution.

i) Soaps are molecules in which the two ends have differing properties, one is hydrophilic, that is, it interacts with water, while the other end is hydrophobic, that is, it interacts with hydrocarbons.

ii) When soap is at the surface of water, the hydrophobic tail of soap will not be soluble in water and the soap will align along the surface of water with the ionic end in water and the hydrocarbon 'tail' protruding out of water.

iii) Inside water, these molecules have a unique orientation that keeps the hydrocarbon portion out of the water.

iv) Thus, clusters of molecules in which the hydrophobic tails are in the interior of the cluster and the ionic ends are on the surface of the cluster.

v) This formation is called a micelle. Soap in the form of a micelle is able to clean, since the oily dirt will be collected in the centre of the micelle.

vi) The micelles stay in solution as a colloid and will not come together to precipitate because of ion-ion repulsion.

vii) Thus, the dirt suspended in the micelles is also easily rinsed away.

17A) Define Ohm's law. Describe an activity to prove Ohm's law.

A) **Ohm's law:** The potential difference across the ends of a conductor is directly proportional to electric current passing through it, provided its temperature remains the same.

Aim: Verification of Ohm's law.(V/ I = Constant.

Materials required: Nichrome wire, ammeter, Voltmeter, cells.

Procedure: *Set up the circuit as shown in figure.

Battery
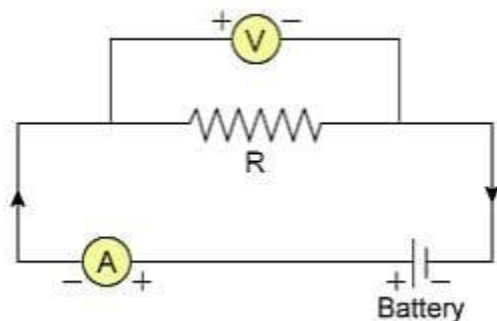
*first connect one cell, record V and I
*Repeat this experiment with 2, 3 and 4 cells. And

Note the observations in the table.

S. No	No. Of cells	Current (I)	Potential difference (V)	V/I
1.				
2.				
3.				
4.				

*Calculate the ratio V/I for each case.

V/I is constant.

Conclusion: V/I= constant.

Hence Ohm's law is verified.

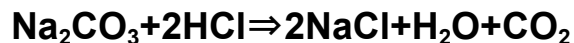**17B) Describe an activity to show the reaction between metal carbonates with acids?**

A) **Aim:** CO_2 gas evolved when metal carbonates and metal hydrogen carbonates react with acids.

Required materials: stand, test tubes, sodium carbonate, sodium hydrogen carbonate ,dilute HCl, delivery tube, thistle funnel, lime water.

Procedure:

1. Take two test tubes label them as A and B.

2. Take about 0.5 g of sodium carbonate in test tube A and about 0.5 g of sodium hydrogen carbonate in test tube B.

3. Add about 2 ml of dilute HCl to both the test tubes .

4.CO_2 evolved in both test tubes A and B.

5.pass the gas produced in each case through lime water.

5.we observe that a milky precipitate of calcium carbonate formed.

Equation of the reaction:

$Na_2CO_3 + 2HCl \Rightarrow 2NaCl + H_2O + CO_2$
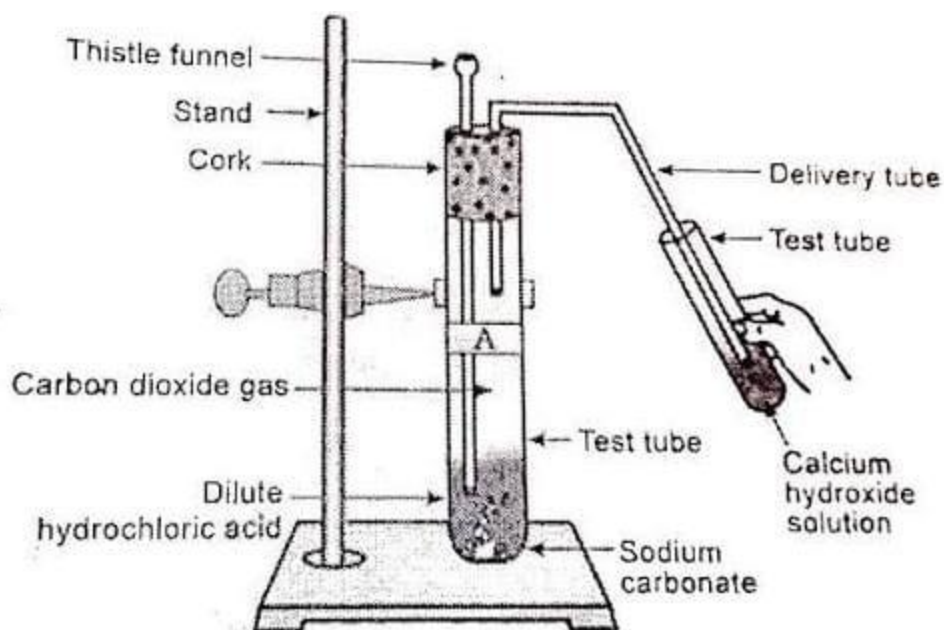
Observation: CO_2 gas evolved when metal carbonates and metal hydrogen carbonates react with acids.

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