SENIOR SECTION
DEPARTMENT OF CHEMISTRY
CLASS IX
LAB SHEET -I

PREPARATION OF MIXTURE & COMPOUND

Experiment No: ……4……. Date: …….

Objective: To prepare (a) mixture and (b) a compound using iron filings and sulphur powder and distinguish between these on the basis of:

(a)Appearance (homogeneity and heterogeneity); (b) Behaviour towards magnet

(c) Behaviour towards Carbon disulphide (CS_2); (d) Effect of heat.

Requirements: China dish, test tubes, test tube holder, mortar and pestle, watch glasses, magnet, Bunsen burner, iron filings, tripod stand, wire gauze, sulphur powder, CS_2 etc.

Procedure:

1. Take 7 g of Iron filings and 4 g of sulphur powder and mix them well using mortar and pestle. Transfer half of this into watch glass no-1
2. Take half of this mixture in a china dish heat strongly on a Bunsen burner (Use tripod stand and wire gauze) till the mixture starts to show a red glow.
3. Cool the mixture, and grind into fine powder using a mortar and pestle.
4. Transfer the powder to watch glass no-2.
5. Perform the following experiments with the samples you have in both the watch glasses.

Properties of mixture of iron &sulphur

EXPERIMENT	OBSERVATION	INFERENCE
Dip a magnet in the mixture of substances.	Only iron powder/filing gets attracted by the magnet.	Iron has magnetic properties but sulphur does not.
Observe the substances under a magnifying glass	Brown/black iron powder and yellow coloured sulphur powder can be easily distinguished.	Because it forms a heterogeneous mixture
Try to dissolve the mixture in 2 ml of CS_2 taken in a test tube.	Yellow coloured sulphur dissolves. Fe does not.	Sulphur is soluble in CS_2

Properties of compound of iron &sulphur

EXPERIMENT	OBSERVATION	INFERENCE
A small portion of the mixture is taken on china dish and heat strongly on a Bunsen flame	A reaction takes place with the emission of an offensive smelling gas. Sulphur also catches fire. Finally the yellow colour of S disappears and a brown substance is formed.	Fe + S → FeS (Ferrous sulphide) Some sulphur also gets burned results in the formation of offensive smelling SO_2 gas.
Observe the product formed after heating under a magnifying glass	Only a brown coloured powder is seen	On reacting Fe and S combine to form a compound, which is homogeneous.
Dip a magnet in the product formed.	Substance does not get attracted by the magnet	FeS is diamagnetic (Does not show magnetic behaviour)
Take the product formed in a test tube, add CS_2 and shake well.	The substance (FeS) does not dissolve in CS_2	FeS is insoluble in CS_2

Precautions:

1. Heating of the Fe & S mixture should be done with extreme care.
2. While performing the experiments, use only very little quantity of the samples.
3. Use china dish for heating the mixture.

Questions:

1. Name the compounds formed when the following chemicals react:
   a) Hydrogen and Oxygen b)Mg and S
   b) S and Fe d)Fe and Cl_2.
2. Classify the following into homogeneous and heterogeneous mixtures.
   a) Sand and saw dust b) Sugar dissolved in water.
   c) Milk d) Powders of Fe and S
3. Suggest suitable physical methods to separate the following mixtures:
   a. Fe and S Magnet
   b. NaCl and water Evaporation/Boiling
   c. Sand and water Filtration
4. Classify the following into compounds, elements and mixture:
   a. Air b. CO_2 gas, c. Fe metal d. S powder f. Sugar solution e. Ethane
   f. Fe + S g. NaCl h. SO_2 gas. i. H_2S gas j. Ammonia gas k. Milk

Multiple choice type questions

1	On heating a mixture of iron filings & sulphur ,it is observed that a) Sulphur starts melting b) iron filings start melting c) mixture becomes red hot d) mixture evaporates
2	When dilute sulphuric acid is added to a mixture of iron filings & sulphur owder ,it is observed that a) A brisk reaction takes place without evolution of gas b) A brisk reaction takes place with the evolution of a colourless gas c) The yellow colour of sulphur disappears d) Gas with the smell of rotten egg is evolved
3	A small amount of iron sulphide is added to 5 cc of carbon di sulphide and the test tube is shaken vigourously, it is seen that a) Grey coloured iron particles dissolve,but not sulphur b) Yellow coloured sulphur particles dissolve, but not iron c) Both iron &sulphur dissolve to form a clear solution d) None of the particles of the compound dissolves.
4	When a mixture iron &sulphur powder is reacted in a china dish ,then after some time it glows with a) Yellowish colour b) Bluish colour c) Greenish colour d) Reddish colour
5	On heating a mixture of iron filings &sulphur powder strongly,the colour of the product becomes a) Grey b) Black c) Brown d) Yellow
6	To prepare iron sulphide ,by heating a mixture of iron filings &sulphur powder ,we should use a)copper dish b) china dish c)petri dish d)china dish
7	The reaction of iron and sulphur to form iron sulphide takes place at: a) at high temperature b) in the presence of a catalyst c) at moderate temperature d) in the presence of an acid