

2/1/20



Chapter 1

Matter in Our Surroundings

Q.1 Convert the following temperature to the Celsius scale: [ $K = C + 273$ ]

(i) 293 K

ans.  $C = K - 273$   
 $C = 293 - 273$   
 $= 20^{\circ}C$  ans.

(ii) 470 K

ans.  $C = K - 273$   
 $C = 470 - 273$   
 $= 197^{\circ}C$  ans.

Q.2 Convert the following temperature to Kelvin scale.

(i) 25 C

ans.  $K = C + 273$   
 $= 25 + 273$   
 $= 298$

(ii) 373 C

ans.  $K = C + 273$   
 $= 373 + 273$   
 $= 646$

Q.3 Give reason for the following observation:

(a) Naphthalene balls decrease disappear with time without leaving any solid

cm

pg. 2



ans: Particles at the surface of Naphthalene have large kinetic energy. They overcome the force of attraction with other particles. Thus they escape from the surface and directly diffuse through the air. In other words we can state that naphthalene sublimates and its vapour diffuses into the atmospheric air.

(f) We can get the smell of perfume sitting several metres away.

Ans: Due to diffusion smell of perfume reaches several metres away.

Q 4 Arrange the following substances in increasing order of force of attraction between the particles: water, sugar, oxygen.

Ans: Oxygen, water, sugar.

Q 5 What is the physical state of water at -

(a)  $25^{\circ}\text{C}$

(b)  $0^{\circ}\text{C}$

(c)  $100^{\circ}\text{C}$

= Liquid

= solid, liquid

= Vapour

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Q.5 Give two reasons to justify -

(a) Water at room temperature is a liquid  
ans. Water at room temperature

(1) Property of liquid.

(a) Liquids have a definite mass and volume.

(b) They do not have any definite shape and take the shape of the container they are placed in. Liquids can flow. At room temperature, water shows all the above mentioned properties. Thus water at room temperature is classified as liquid.

(b) An iron almirah at room temperature?

ans. Solids have definite mass and volume they are rigid and have a fixed shape. Solids cannot flow at room temp. An iron almirah shows all the above mentioned properties.

Thus, an iron almirah at room temp. is classified as a solid.

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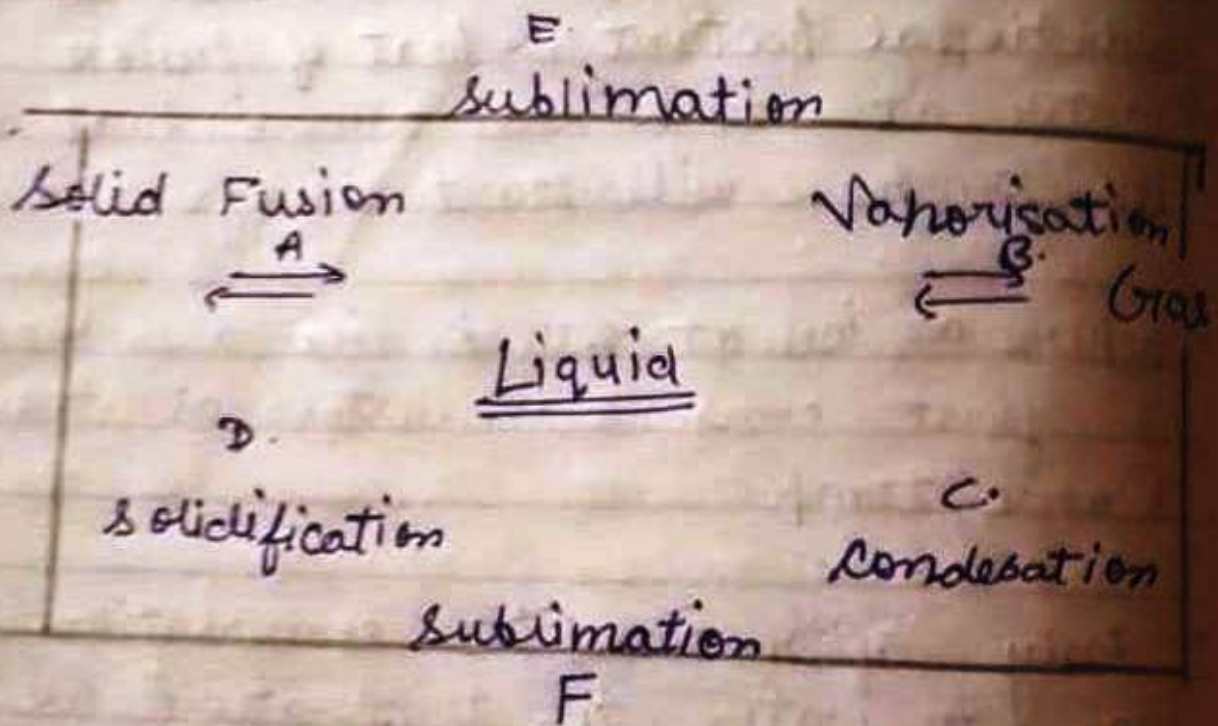
- Q.3 Why is ice at  $273\text{ K}$  more effective in cooling than water at the same temperature?
- Ans → Ice at  $273\text{ K}$  has lesser energy than water at the same temp. Water has an additional factor i.e. heat of fusion.
- Water at  $273\text{ K}$  will absorb heat and its temp. will start rising.
  - Whereas ice at  $273\text{ K}$  will absorb heat & first convert to water at the same temp.
  - Only after complete conversion from ice to water, the temperature will rise. Thus ice at  $273\text{ K}$  is more effective in cooling than water at same temp.

Q.4 Name A, B, C, D, E and F in the following diagram showing change in its state.

Ans → Steam at  $373\text{ K}$  has more energy than water at the same temp. Steam has an additional heat of vaporisation.

# ch 1 page 5

Increase heat  
and  
decrease pressure.



# ch 1 page 6

- Water at 373 K will release heat and its temp. will start decreasing
- Whereas steam at 373 K will release heat and first convert to water at the same temp.
- Only after complete conversion from steam to water, the temp. will start decreasing. Thus steam produces more severe burns than boiling water.

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# ch2 page 1

## Chapter - 2 Matter Around us Pure?

### Exercise.

Q:1 Which separation techniques will you apply for the separation of the following?

a. Sodium chloride from its solution in water.

→ Evaporation

b. Ammonium chloride from a mixture containing sodium chloride and ammonium chloride.

→ Sublimation

c. Small pieces of metal in the engine oil of a car.

→ Filtration

d. Different pigments of flower petals.

# ch 2 page 2

at this temp. ?

→ solubility of each salt at 293 K is as follows

• Potassium nitrate = 32 g

• Sodium chloride = 36 g

• Potassium chloride = 35 g

• Ammonium chloride = 37 g

Thus, ammonium chloride salt has the highest amount of solubility with compared to any other salt at 293 K.

(d) What is the effect of change of temp. on the solubility of a salt ?

⇒ solubility of a salt increase with temperature.

Q: 4. Explain the following giving exptl examples:-

(a) Saturated solution: A saturated solution is a solution in which the maximum amount of solute has been dissolved at a particular temperature. For exm ex -

ex. → When sugar is dissolved repeatedly in water, a condition reached at which further dissolution of sugar is impossible.



# ch2 page 3



(b) Pure substance - Pure substance consists only 1 type of atoms, molecules or compound. For ex. → salt, sugar etc.

(c) Colloid: A colloid is a heterogeneous mixture in which 1 substance is scattered as very fine particles in a continuous medium of another substance. These particles cannot be seen naked eyes. For ex. → ink, blood.

(d) Suspension: A suspension is a heterogeneous mixture containing particles that are big enough to settle down. Particles of suspension visible to the naked eye. For ex. - chalk powder, paints.

Q:5, classify each of the following as a homogeneous/heterogeneous mixture.  
soda water, wood, air, soil, vinegar, filtered tea.

= Homogeneous - soda water, vinegar, filtered tea.  
Heterogeneous - wood, air, soil.



# ch2 page 5

Substance Dissolved	Temp. (in kelvin)				
	283	293	313	333	353
	Solubility				
Potassium nitrate	21	32	62	106	167
Sodium chloride	36	36	36	37	37
Potassium chloride	35	35	40	46	54
Ammonium chloride	24	37	41	55	66

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at this temp.?

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ex. → When sugar is dissolved repeatedly in water, a condition reached at which further dissolution of sugar is impossible.

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(b) Pure substance - Pure substance consists only 1 type of atoms, molecules or compound. For ex. → salt, sugar etc.

(A) Colloid: A colloid is a heterogeneous mixture in which 1 substance is scattered as very fine particles in a continuous medium of another substance. These particles cannot be seen naked eyes. For ex. → ink, etc.

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10 Ans  
↓

Elements	Compounds	Mixtures
Sodium	Calcium carbonate	Soil
Silver	Soap	Sugar solution
Tin	Methane	Coal
Silicon	Carbon dioxide	Air, sea water

11 Ans.

The following changes are chemical changes -

- Growth of a plant.
- Rusting of iron
- Cooking of food.
- Digestion of food
- Burning of a candle.

# ch2 page 10

- a) salt solution  
c) copper sulphate solution  
and - Milk and starch solution will show Tyndall effect.
- b) Milk  
d) starch solution

Q:10 Classify the following <sup>into</sup> elements, compounds and mixtures

- |            |                      |                           |
|------------|----------------------|---------------------------|
| a) Sodium  | b) Soil              | c) sugar sol <sup>n</sup> |
| d) Silver  | e) Calcium carbonate | f) Tin                    |
| g) Silicon | h) Coal              | i) Air                    |
| j) Lemon   | k) Methane           | l) Carbon dioxide         |
| m) Blood   |                      |                           |

← and:

Q:11- Which of the following are chemical changes?

- Growth of a plant
- Rusting of iron
- Mixing of iron filings and sand
- Cooking of food
- Digestion of food
- Freezing of water
- Burning of a candle