

## Lab Question from Board papers Class-09[2018]

### SET-1 Short Answer Type Questions (2 marks)

1. How will you separate a mixture of iron filings, iodine and common salt?

Ans. (i) Remove iron filings with the help of magnet.

(ii) Iodine can be removed by sublimation whereas common salt will be left behind.

2. Write three observations when iron filings and Sulphur are mixed together in a china dish.

Ans. (i) A heterogeneous mixture results.

(ii) The constituent particles present can be seen.

(ii,) The Constituents can be separated by magnet, physical method.

3. Give four properties of FeS.

Ans. (i) It is greyish-black in colour. (ii) It does not dissolve in carbon disulphide.

(iii) It liberates H<sub>2</sub>S when treated with dil H<sub>2</sub>SO<sub>4</sub>. (iv) It is not attracted by magnet.

4. What is the formula of iron sulphide? Can we separate FeS into iron and sulphur by physical method?

Ans. FeS is the formula of iron sulphide. We cannot separate elements of a compound by physical method.

5. What precautions should we observe while handling carbon disulphide and why?

Ans. (i) It should be kept away from flame because it is highly inflammable (catches fire).

(ii) It should be kept in airtight bottle because it is highly volatile (vaporizable).

### SET-2 Short Answer Type Questions (2 marks)

1. On burning magnesium ribbon in air, a white ash is obtained. Name the product and type of change.

Ans.  $2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$  Magnesium oxide is formed and it is a chemical change.

2. What are observations when zinc granules are added to dil. sulphuric acid in a test tube?

Ans. (i) Colourless, odourless gas with bubbles comes out. (ii) Gradual decrease in size of zinc granules. (iii) Heat energy is evolved in the reaction.

3. What is the formula of hydrated copper sulphate? What is its colour? What will be the formula and colour of compound obtained on heating.

Ans.  $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$  is blue coloured hydrated copper sulphate.  $\text{CuSO}_4$  is anhydrous copper sulphate which is dirty white.

4. What happens when iron nails are added to copper sulphate solution? What do you conclude about reactivity of iron and copper?

Ans. Reddish brown precipitate of copper is formed and solution becomes pale green. It shows iron is more reactive than copper.

5. What happens when barium chloride solution is mixed with sodium sulphate solution? What type of reaction it is?

Ans. White ppt. of  $\text{BaSO}_4$  will be formed. It is precipitation reaction.

### **SET-3 Short Answer Type Questions (2 marks.)**

1. What are precautions to be observed while conducting experiment to find relationship between weight of block and applied force to just balance it?

Ans. (i) Putty should be frictionless. (ii) Spring balance should not have zero error. If it has, it should be taken into consideration. (iii) The hanging pan should be vertical.

2. What type of thread should be used to move the block kept horizontally on the surface and why?

Ans. It should be less elastic, unable to be stretched. It is because force applied is exerted only on the block and not on the thread.

3. Define coefficient of limiting friction.

Ans. It is ratio of force of friction to the normal reaction.

4. State two factors which determine the magnitude of limiting friction.

Ans. (i) The nature of surface. (ii) The normal reaction force between two surfaces.

### **SET- 4 Short Answer Type Questions (2 marks.)**

1. How will you prepare colloidal solution of starch? [CBSE (CCE) 2014]

Ans. (i) Make a thin paste of starch. (ii) Add thin paste of starch to boiling water with constant stirring.

2. What is correct procedure for preparing colloidal solution of egg albumin?

Ans. (i) Break the egg shell. (ii) Take only the white portion.

(iii) Add it to water. (iv) Keep on stirring continuously.

3. Give three characteristics of colloidal solution by which it can be identified.

Ans. (i) Components cannot be separated by ordinary filtration. (ii) It is translucent.

(iii) It shows Tyndall effect.

4. Give two features of true solution by which it can be identified.

Ans. (i) It is homogeneous and transparent. (ii) It passes through filter paper.

5. How will you identify suspension?

Ans. (i) It is opaque. (ii) The components can be separated by filtration.

(iii) Particles settle down due to gravity after some time. (iv) Particles can be seen by naked eye.

#### SET-5 Short Answer Type Questions (2 marks)

1. Four students were asked to add water to glucose powder, milk, sand and soil separately in four beakers. Classify the mixtures as a true solution, colloid and suspension: [CBSE (CCE) 2014]

Ans. Glucose will form true solution. Milk will form colloidal solution. Sand and soil will form suspension.

2. Rama took a fine chalk powder, egg albumin starch powder and alum powder in four test tubes A, B, C and D. After adding water to all of test tubes, identify the test tube as true solution, suspension, and colloidal. [CBSE (CCE) 2014]

Ans. 'A' will have suspension, 'B', 'C' will have colloidal solution and 'D' will have true solution.

3. When light passes through a solution of alum in water one cannot see the path of light through it, why? Give two examples of solution where similar results will be observed. [CBSE (CCE) 2015]

Ans. It is because particles of true solution are very small and cannot scatter light. Sugar solution and salt solution are examples which will show similar results.

4. Identify two clear and transparent solutions from the following mixtures: [CBSE (CCE) 2015]

- (i) Milk and water (ii) sugar and water (iii) chalk powder and water  
(iv) Starch powder and water (v) glucose and water

Ans. (ii) and (v) are clear and transparent solutions because these are true solutions.

5. You are asked to prepare aqueous solutions of sodium chloride and starch powder. How would you compare them on the basis of transparency and stability? [CBSE (CCE) 2015]

Ans. Aqueous solution of sodium chloride will be transparent and more stable. Colloidal solution of starch is translucent and less stable than sodium chloride solution.

### **SET- 6 Short Answer Type Questions (2 marks.)**

1. (a) Mention the phylum of the following animals;

- (i) Earthworm (ii) Cockroach  
(b) Funaria differs from Dryopteris, How? (give one point)

Ans: (a) (i) Annelida (ii) Arthropoda (b) Dryopteris belong to pteridophyta while funaria belongs to bryophyta.

2. Write any two precautions that you will take while preparing a stained temporary mount of cheek cells.

Ans: Precautions

Ensure toothpick used to scrape the cheek is clean, so it does not cause infection to the cheek.

Extra glycerine stain should be removed using blotting paper.

3. Classify the following as chemical or physical changes:

- (i) Reaction of barium chloride solution with sodium sulphate solution (p)  
(ii) Passing of electric current, through water and the water breaking down into hydrogen and oxygen gases .(c)  
(iii) Dissolving common salt in water. (p)  
(iv) Heating sulphur powder with iron. (p)

4. (i) If we want to determine the volume of a solid by immersing it in water, then what kind of solid should we take ?

(ii) If a body floats on the surface of a liquid, then how much is the weight of the liquid displaced as compared to weight of body ?

Ans: (i) The solid should be heavier than water and insoluble in it. (ii) Equal to the weight of the body.

5. In an experiment to determine the loss weight of an object when immersed in a liquid, on what factors the force acting on an object depends

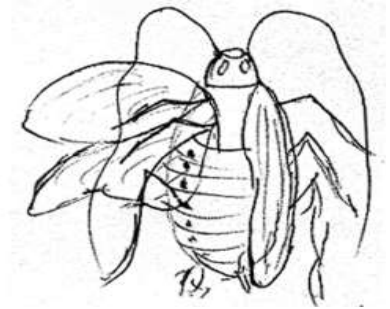
Ans. The weight of a body acting downwards, up thrust on the body due to liquid acting vertically upward.

6. Identify the given organism in the picture given below and write its one specific feature and one adaptive feature

Ans: Picture is - Cockroach.

Specific feature - Jointed legs, compound eye.

Adaptive feature - Omnivorous, body divided into head, thorax and abdomen.



### **SET-7 Short Answer Type Questions (2 marks)**

1. Write two important precautions to be taken in an experiment to determine the density of a solid by using a spring balance and a measuring cylinder.

Ans. (i) While weighing body should be fully immersed in water / liquid the solid should not touch the walls of the beaker or cylinder.

(ii) Lower meniscus of the water level in the measuring cylinder should be read.

2. In an experiment on measurement of loss in weight of an iron ball immersed in tap water and salty water separately, when is the maximum loss in weight of iron ball observed? Give reason.

Ans. In tap water because tap water is less dense than salty water and exerts less up thrust hence maximum loss in weight in the solid.

3.(a) Animals of which phylum have jointed appendages ? (b) Why cockroaches are generally found in kitchens or godown?

Ans. (a) Arthropoda (b) Because they are nocturnal insects and are found in places where moisture and warmth are available.

4. A piece of copper of mass 106g is dipped in a measuring cylinder containing water at 70ml mark. The water rises to 82ml mark. Find (a) volume of copper piece (b) density of copper. (c) Relative density of copper

Ans: (a) Volume of copper piece =  $V_2 - V_1 = 35 - 22 = 13 \text{ ml} = 13 \text{ cc}$

(b) Density of copper =  $m/v = 106/13 = 8.15 \text{ g/cc}$

(c) Relative density of copper =  $\text{Density of copper}/(\text{Density of water}) = 8.15/1 = 8.15$

5. A student uses a spring balance of least count 10g wt and range 500 g wt. he records the weight of a small iron cube in air, in tap water and in salty water. If his three readings taken in this order are  $W_1$ ,  $W_2$  and  $W_3$ . Relate the three readings  $W_1$ ,  $W_2$  and  $W_3$  using Archimedes' principle.

Ans:  $W_1 > W_2 > W_3$

It is because greater the density of the fluid greater up thrust will be reduced by the fluid into the object

### SET-8 Short Answer Type Questions (2 marks)

1. An object of volume 200 cm<sup>3</sup> is floating on a fluid with half of its portion inside the fluid as below. Find the volume and weight of the fluid displaced by the object

Ans: If a object is floating half inside –

(i) Volume of water displaced = volume of object inside water = 100cm<sup>3</sup> [half portion of object inside the fluid]

(iii) Weight of water displaced =  $Vdg = 100\text{cm}^3 \times 1 \text{ g/cm}^3 \times 9.8\text{m/s}^2 = 980\text{N}$

2. A cube of copper and spherical ball of iron having the same volume, immersed in salty water. Find the buoyant force acting on these objects with reasons.

Ans. A cube of copper and spherical ball of iron experience same amount of buoyant force in both cases because buoyant force cannot depend on shape of object. As both cubical and spherical have the same volume, same amount of water (may be salty) will get displaced and hence same buoyant force in both cases

3. The volume of a solid cube of copper of mass 900 g is 100 cm<sup>3</sup>. This cube is immersed in water. Find the mass of water displaced by it? If this cube is immersed in salt solution then how will the mass of liquid displaced by the cube change? Give reason for your answer.

Ans: (i) Volume of water displaced = volume of object inside water = 100cm<sup>3</sup>

(ii) Mass of water = density of water x Volume of water = 100cm<sup>3</sup> x 1g/cm<sup>3</sup> = 100g

No change occur as volume of water depends on volume of object not on the density of fluid

4. Write two main precautions to be taken to read the water level in the graduated cylinder.

Ans: When reading a scale on the side of an instrument filled up with a Colourless liquid in this case water, we have to take the reading of the lower meniscus. However in case of colored solutions or mercury the reading of upper meniscus is taken.

The reading has to be taken at the same level as that of the eye to prevent any parallax error.

5. In which of the two, glycerine or kerosene, the loss in weight of a solid when fully immersed in them will be more and why?

Ans. The weight loss of given solid will be more in glycerine than in kerosene. This is because density of glycerine (1.26g/cm<sup>3</sup>) is more than density of Kerosene (0.8 g/cm<sup>3</sup>)

### **SET-9 Short Answer Type Questions (2 marks)**

1. In an experiment on measurement of loss in weight of an iron ball immersed in tap water and salty water separately, when is the maximum loss in weight of iron ball observed? Give reason.

Ans. As the density of the salty water is higher than the tap water. Therefore the wt. of the iron ball is less in salty water.

2(i) If we want to determine the volume of a solid by immersing it in water, then what kind of solid should we take?

(ii) If a body floats on the surface of a liquid, then how much is the weight of the liquid displaced as compared to weight of body?

Ans. (i) solid must be heavier and insoluble in water

=> heavier because as it should get completely immersed in water

=> insoluble as it will not dissolve in water which will tend to give the wrong weight

(ii) the weight of the liquid displaced is equal to weight of body

3. In an experiment to establish the relation between the loss in weight of a solid when fully immersed in tap and salty water separately a student inferred the correct result as follows:

(Complete the result by filling appropriate words)

(a) The loss in weight of the solid immersed in the liquid is ----- to the weight of the liquid displaced by that solid which proves the ----- Principle.

(b) The loss in weight of the solid in strongly salty water is ----- as compared to the tap water for the same solid as up thrust in salty water is ----- than in tap water.

Ans.(i) Equal ,Archimedes principle (ii) more, greater

4. If the weight of displaced water by an object weighing 50 N is 10 N, then find the buoyant force of water on the object. What will be the weight of object in water?

Ans: Buoyant force act on object = weight loss =  $50\text{N} - 10\text{N} = 40\text{N}$

5. Mention the type of thermometer that should be used to determine the melting point of ice in laboratory ? What should be the position of bulb in thermometer ?

Ans. Thermometer used for measuring the melting point of ice is laboratory thermometer. The two precautions includes :

(i) Thermometer knob should not touch the bottom. (ii) Ice should be perfectly crushed.

### **SET-10 Short Answer Type Questions (2 marks)**

1. After a solid starts melting, we observe that the temperature remains constant until the whole of the solid has melted. Where the energy does goes?

Ans. After solid start melting, the temperature remain constant until all the solid get melted because the energy is used to overcome the latent heat of fusion and in breaking the strong intermolecular force of attraction.

2. Sheema was asked to prepare four separate mixtures in four beakers A, B, C, D by mixing sugar, fine sand, thin paste of starch and chalk powder respectively in water and then categories each as stable or unstable. What will be the correct categorization?

Ans. The mixture in beaker A and C will be stable. The mixture in beaker B and D will be unstable.