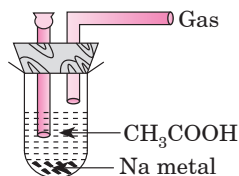




PRACTICAL QUESTIONS

Multiple Choice Questions

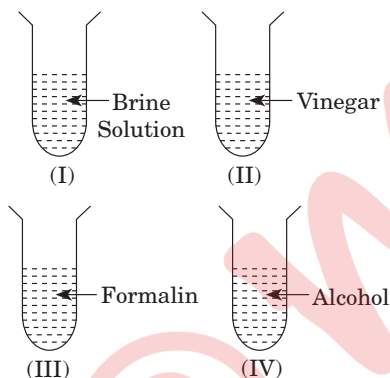
1. The gas evolved in the experiment shown here is



- (a) O₂
- (b) H₂
- (c) CO₂
- (d) Cl₂

Ans. (b) : $2\text{CH}_3\text{COOH} + 2\text{Na} \longrightarrow 2\text{CH}_3\text{COONa} + \text{H}_2\uparrow$

2. A student added 4 food articles in four test tubes respectively. The test tube containing acetic acid is



- (a) I
- (b) II
- (c) III
- (d) IV

Ans. (b) : Vinegar is acetic acid.

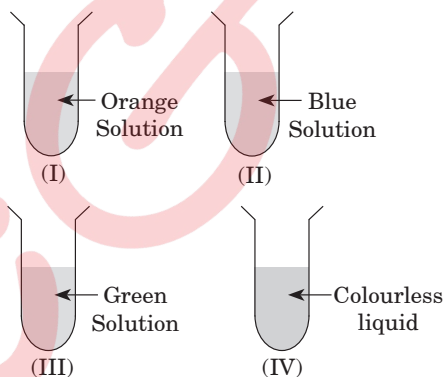
3. A student took four test tubes *P*, *Q*, *R* and *S* and filled about 8 mL of distilled water in each. After that he dissolved an equal amount of Na₂SO₄ in *P*, K₂SO₄ in *Q*, CaSO₄ in *R* and MgSO₄ in *S*. On adding an equal amount of soap solution and shaking each test tube well, a good amount of lather will be obtained in the test tubes.

- (a) *P* and *Q*
- (b) *P* and *R*
- (c) *P*, *Q* and *S*
- (d) *Q*, *R* and *S*

Ans. (a) : Test tube *P* contains Na₂SO₄ (Na⁺ ions)
Q contains K₂SO₄ (K⁺ ions)
R contains CaSO₄ (Ca²⁺ ions)
S contains MgSO₄ (Mg²⁺ ions)

As soap does not give lather with solution containing Ca²⁺ and Mg²⁺ ions due to formation of insoluble calcium and magnesium salts of fatty acids, hence, test tube *R* and *S* will not form lather while solution of test tube *P* and *Q* will form lather with soap.

4. You are given four sample of chemicals. Observe their colour carefully. The sample containing acetic acid is



- (a) I
- (b) II
- (c) III
- (d) IV

Ans. (d) : Acetic acid is colourless.

5. The soaps are not suitable for washing woollen garments because

- (a) soaps are basic and dyes on woollen garments are acidic which get spoiled
- (b) soaps react with woollen garments
- (c) soaps are acidic in nature
- (d) soaps are neutral in nature.

Ans. (a) : Soaps are basic and dyes on woollen garments are acidic which get spoiled.

6. A student requires hard water for an experiment in his laboratory which is not available in the neighbouring area. In the laboratory there are some salts, which when dissolved in distilled water can convert it into hard water. Select from the following groups of salts, a group, each salt of which when dissolved in distilled water will make it hard.

- (a) Sodium chloride, Potassium chloride
- (b) Sodium sulphate, Potassium sulphate
- (c) Sodium sulphate, Calcium sulphate
- (d) Calcium sulphate, Calcium chloride

Ans. (d) : Hard water contains hydrogen carbonate, chloride and sulphate of calcium and magnesium. So, from the given option, (d) form hard water on adding to distilled water.

7. While studying the saponification reaction, what do you observe when you mix an equal amount of colourless vegetable oil and 20% aqueous solution of NaOH in a beaker?

- (a) The colour of the mixture has become dark brown.
 (b) A brisk effervescence is taking place in the beaker.
 (c) The outer surface of the beaker has become hot.
 (d) The outer surface of the beaker has become cold.

Ans. (c) : Saponification reaction is an exothermic reaction (i.e., heat is released) thus during the reaction the outer surface of the beaker becomes hot.

8. When acetic acid reacts with ethyl alcohol, we add conc H_2SO_4 . It acts as _____ and the process is called _____.

- (a) oxidising agent, saponification
 (b) dehydrating agent, esterification
 (c) reducing agent, esterification
 (d) acid, esterification

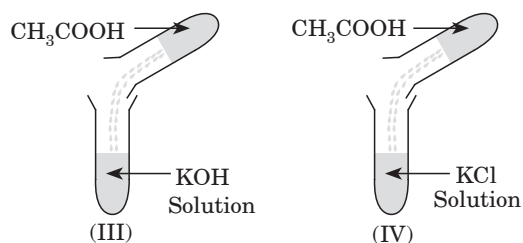
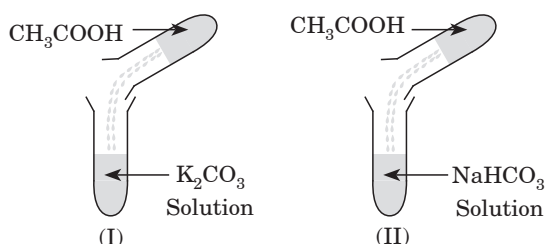
Ans. (b) : $CH_3COOH + C_2H_5OH \xrightarrow{\text{Conc. } H_2SO_4} CH_3COOC_2H_5 + H_2O$

9. Three students performed experiment by adding Na metal, Na_2CO_3 and $NaHCO_3$ solution in acetic acid in test tubes A, B and C respectively. The gases evolved respectively are

- (a) H_2 , CO_2 , CO_2 (b) CO_2 , H_2 , CO_2
 (c) CO_2 , CO_2 , H_2 (d) CO_2 , CO , H_2

Ans. (a) : $2CH_3COOH + 2Na \longrightarrow 2CH_3COONa + H_2 \uparrow$
 $2CH_3COOH + Na_2CO_3 \longrightarrow 2CH_3COONa + CO_2 \uparrow + H_2O$
 $CH_3COOH + NaHCO_3 \longrightarrow CH_3COONa + H_2O + CO_2 \uparrow$

10. If burning candle is brought near each of the following test tube, in which of the following candle will get extinguished?



- (a) I and II (b) II and III
 (c) III and IV (d) I and II

Ans. (a) : In I and II gas evolved will be CO_2 which is non-supporter of combustion, therefore candle will get extinguished.

Subjective Questions

11. Mention the essential material (chemicals) to prepare soap in the laboratory. Describe in brief the test of determining the nature (acidic/alkaline) of the reaction mixture of saponification reaction.

Ans. Essential materials required to prepare soap in laboratory are fatty acids (like palmitic acid, stearic acid), NaOH and NaCl. To determine the nature of reaction mixture of saponification, put a drop of mixture on red litmus paper, then it turns blue, which indicates the alkaline nature of reaction mixture.

12. (a) Does a red litmus paper change its colour when dipped in soap solution? What does it indicate?

(b) Can we use Na_2CO_3 instead of NaOH in preparing soap? Explain.

Ans. (a) It turns blue. This indicates soap solution is basic in nature.

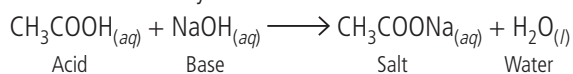
(b) No, because it is a weaker base.

13. (a) How will you show that ethanoic acid is acidic in nature?

(b) What type of reaction takes place between ethanoic acid and sodium hydroxide solution?

Ans. (a) Dip blue litmus paper in ethanoic acid, if it turns red, it means ethanoic acid is acidic in nature.

(b) A neutralisation reaction takes place between ethanoic acid and sodium hydroxide.



14. In three test tubes A, B and C, three different liquids namely, distilled water, underground water and distilled water in which a pinch of calcium sulphate is dissolved, respectively are taken. Equal amount of soap solution is added to each test tube and the contents are shaken. In which test tube will the length of the foam (lather) be longest? Justify your answer.

Ans. The length of the foam will be longest in test tube A containing distilled water. This is because underground water contains calcium and magnesium ions which form insoluble salts (scum) with soap. Also calcium sulphate added to test tube C will interfere with lather formation by forming scum.

15. A liquid organic compound (which has no effect on blue litmus paper) is taken in a dry test tube and a small piece of sodium metal is dropped into it. A colourless combustible gas is evolved. This gas burns with a blue flame and

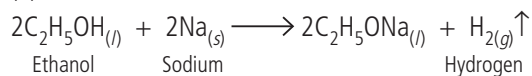
popping sound.

(a) Identify the gas, and the liquid organic compound.

(b) Write the chemical equation for the reaction between the liquid and sodium metal.

Ans. (a) The gas evolved is hydrogen and the liquid organic compound is an alcohol, such as, ethanol.

(b) The reaction between ethanol and sodium metal is



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