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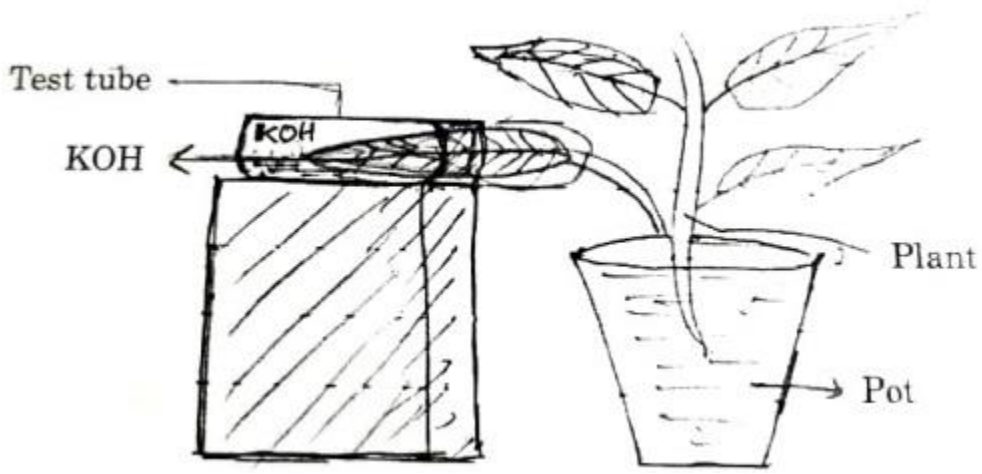
CLASS: X SUBJECT: SCIENCE

Case Study 1

Take a healthy potted plant with elongated leaves. Select a leaf and insert about one half of this leaf in a test tube containing KOH and make it air tight. Place the set-up in sun for two hours. Take out the leaf from the test tube and dip it in boiling water for a few minutes. Put this leaf in a beaker with alcohol and boil it in a water bath. Wash the leaf with water and then dip the leaf in iodine solution for a few minutes. The portion of the leaf dipped in KOH solution will not show any change when dipped in iodine solution.



1. The function of KOH taken in the test tube is to absorb :

(a) Released water vapours

(b) Released CO2

(c) Released O2

(d) Chlorophyll

ANSWER: (b) Released CO2

Explaination: Because KOH absorb CO2

2. On the basis of this activity, we may conclude that the essential factor for photosynthesis is :

(a) Carbon dioxide

(b) Oxygen

(c) Chlorophyll

(d) Water vapour

Ans (a) Carbon dioxide

Expaination: **carbon dioxide is essential in this experiment**

3. The event that does not occur in photosynthesis is :

(a) Absorption of light energy by chlorophyll

(b) Reduction of carbon dioxide to carbohydrates

(c) Oxidation of carbon to carbon dioxide

(d) Conversion of light energy to chemical energy

Ans (c) Oxidation of carbon to carbon dioxide

Explaination :- Oxidation will not takes place in Photosynthesis.

4. Iodine solution gives blue-black colour with :

(a) Starch

(b) Proteins

(c) Glucose

(d) Fats

Ans : (a) Starch

Explanation :- This is test for Starch

Case study 2

CLASS X SCIENCE : (PHYSICS) CASE STUDY QUESTION

The lenses forms different types of images when object placed at different locations. When a ray is incident parallel to the principal axis, then after refraction, it passes through the focus or appears to come from the focus.When a ray goes through the optical centre of the lens, it passes without any deviation. If the object is placed between focus and optical centre of the convex lens, erect and magnified image is formed.As the

object is brought closer to the convex lens from infinity to focus, the image moves away from the convex lens from focus to infinity. Also the size of image goes on increasing and the image is always real and inverted.A concave lens always gives a virtual, erect and diminished image irrespective to the position of the object.

(i) The location of image formed by a convex lens when the object is placed at infinity is
(a) at focus
(b) at 2F
(c) at optical center
(d) between Fand 2F
Ans : (a) at focus
Explanation : Ray diagram

(ii) When the object is placed at the focus of concave lens, the image formed is
(a) real and smaller
(b) virtual and inverted
(c) virtual and smaller
(d) real and erect
Ans ; (c) virtual and smaller
Explanation : Ray diagram

(iii) The size of image formed by a convex lens when the object is placed at the focus of convex lens is
(a) small
(b) point in size
(c) highly magnified
(d) same as that of object
Ans :(c) highly magnified
Explanation : Ray diagram

(iv) When the object is placed at 2F in front of convex lens, the location of image is
(a) at F
(b) at 2 F on the other side
(c) at infinity
(d) between F and optical centre
Ans : (b) at 2 F on the other side
Explanation : Ray diagram

Assertion-Reason Based Questions

Assertion (A) : $Fe_2O_3 + 2Al \rightarrow Al_2O_3 + Fe_2$

The above chemical equation is an example of a displacement reaction.

Reason(R) : Aluminium being more reactive than iron, displaces Fe form it's oxide.

(a) Both A and R are true and R is the correct explanation of A

(b)Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false and R is True

Ans : (a) Both A and R are true and R is the correct explanation of A

Assertion (A): In the following chemical equation,

$CuO(s) + Zn(s) \rightarrow ZnO(s) + Cu(s)$

Zinc is getting oxidised and copper oxide is getting reduced.

Reason(R) : The process in which oxygen is added to a substance is called oxidation whereas the process in which oxygen is removed from a substance is called reduction.

(a) Both A and R are true and R is the correct explanation of A

(b)Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false and R is True

Ans : (a) Both A and R are true and R is the correct explanation of A