METAS ADVENTIST SCHOOL

Affiliated to CISCE, New Delhi

P. O. Box 24, Athwalines, Surat.

Std - VI

BIOLOGY

L-2 THE FLOWER

Q.I SELECT THE CORRECT OPTION.

1. Flowers enhance the process of:

(a) pollination in plants

(b) fertilization in plants

(c) both of them

(d) none of them

2. Pollen grains are produced in the

(a) ovary

(b) anther

(c) stigma

(d) style

3. The gynoecium consists of

(a) style, stigma, ovary

(b) anther, filament, style

(c) stigma

(d) style

4. Calyx consists of the

(a) stamens

(b) anthers

(c) sepals

(d) petals

5. Transfer of pollen grains from anther to stigma is termed as

(a) reproduction

(b) fertilization

(c) pollination

(d) fusion

6. A dicot seed has

(a) one cotyledon

(b) two cotyledons

(c) three cotyledons

(d) four cotyledons

7. A dicot seed germinates by

(a) epigeal germination

(b) hypogeal germination

(c) germination does not take place

(d) none of them

8. The fusion of male cell with the female cell in the ovary is called

(a) pollination

(b) fertilization

(c) germination

(d) vegetation

Q. II FILL IN THE BLANKS WITH THE CORRECT OPTION.

1.Pollen grains are produced in the anther.

2.All fruits are formed by the ovaries.

3.The gynoecium consists of stigma and style.

4.The brightly colored flowers are usually pollinated by insects.

5.The part of a flower that gives rise to a seed is called ovule.

Q.III STATE IF THE FOLLOWING STATEMENTS ARE TRUE OR FALSE. CORRECT THE FALSE STATEMENT.

1.The flower is transformed into a fruit. True

2.Zygote is the result of fusion of male cell with the female cell. True

3. Most flowers have colorful sepals. False

Correct statement- Most flowers have colorful petals.

4.Wind-pollinated flowers produce pollen grains in large quantity. True

5. A stamen has long stalk called style. False

Correct statement- A stamen has long stalk called filament.

Q.IV MATCH THE FOLLOWING

1. Style	(b)	(a) Androecium
2. Stamen	(a)	(b) Gynoecium
3. Fruit	(d)	(c) Outer skin of the fruit
4. Seed	(e)	(d) Ripen Ovary
5. Epicarp	(c)	(e) Ovule

Q.V Choose the odd one out and give scientific reasons.

1. Style, stigma, ovary, anther.

Reason- Rest all are female parts of a flower.

2.Calyx, corolla, androecium, stem

Reason- Rest all are parts of a flower.

3. Self-pollination, insect pollination, wind pollination, water pollination

Reason- Rest all are agents of pollination.

4. Leaf, style, ovary, stigma

Reason- Rest all are parts of Gynoecium

5. Sepals, petals, stigma, roots

Reason- Rest all are parts of a flower.

UNDERSTANDING IDEAS

Q.I Give one word for the following

1. It is the most attractive and colorful part of the plant. – Flower

2. The female reproductive organ of a flower. – Carpel

3. A process by which a dormant seed develops into a seedling in the favorable conditions of air, water and warmth. – Germination

4. The transfer of pollen grains from anther to stigma of a flower. - Pollination

5. The male reproductive part of a flower. – Androecium

6. A matured, ripen ovary. – Fruit

7. The second whorl of a flower. – Corolla

8. The sweet, juicy, and edible part of the fruit. – Mesocarp

9. A process of fusion of a male cell with a female cell in flowers. – Fertilization

10. The outer, thin and leathery part of a fruit. – Epicarp

Q.II ANSWER THE FOLLOWING QUESTIONS IN SHORT.

1. Name any four flowering plants. Also mention the color of the flowers in these plants.

Ans. Rose- Red, Sunflower- Yellow, Jasmine- White, Lotus- Pink

2. Name a flower that has all the four whorls.

Ans. Hibiscus

3. In which part of the flower is the ovule found?

Ans. Ovule is found in the ovary which is the female reproductive part of the flower.

4. What is pollination?

Ans. The process of transfer of pollen grains from the anther to the stigma of the same flower or other flower of the same type is called pollination.

5. What is meant by the term 'fertilization'?

Ans. The process of fusion of the male cell with the female cell is known as fertilization.

6. Give examples of two plants that show epigeal germination of seeds.

Ans. Cotton and Papaya shows epigeal germination of seeds.

7. What are the conditions necessary for the germination of seeds?

Ans. The conditions necessary for germination of seeds are the sufficient amount of water, air and a suitable temperature.

8. Where does fertilization occur in a flowering plant?

Ans. Fertilization occurs inside an ovary where a male cell fuses with an egg cell and forms a zygote.

Q.III ANSWER THE FOLLOWING QUESTIONS IN DETAIL.

1. What are the male and female parts of a flower? Mention the functions of each.

Ans. The male reproductive part of a flower is known as Stamen which consists of Filament and Anther.

Filament- It is a long stalk which supports the anther.

Anther- It bears yellow, powdery substances called pollen grains which take part in reproduction of flowers.

The female reproductive part is known as Carpel which consists of Stigma, Style and Ovary.

Stigma- It is a sticky part on which the pollen grains land.

Style- It is a long narrow tube which holds the stigma.

Ovary- It contains small round shaped eggs called ovules.

2. Explain the structure of a seed in detail.

Ans. The seed has an outer protective covering called the seed coat which bears a small scar on it known as Hilum. At the pointed end of a seed, a micropyle is situated very close to hilum. On removing the seed coat, the fleshy parts called cotyledons are seen which store the food for the baby plant called Embryo. An embryo has two parts called Radicle and Plumule.

3. What are the two types of germination in plants? Give two examples of each.

Ans. The two types of germination in plants are- Epigeal Germination and Hypogeal Germination.

Eg of Epigeal Germination – Cotton, Papaya

Eg. of Hypogeal Germination- Maize, Groundnut

4. Name three agents by which pollination takes place in plants. Also give two examples of plants in which pollination takes place by these agents.

Ans. The three agents by which pollination takes place in plants are wind, water and insects.

Pollination by wind – Maize, Wheat

Pollination by water – Hydrilla, Vallisneria

Pollination by Insects – Orchids, Harsingar

Q.5 What part is played by stamens and carpel of a flower in reproduction?

Ans. Stamen is the male reproductive part of the plant which consists of an anther and a filament. Anther produces male eggs in the pollen grains. Carpel is the female reproductive part of the plant which consists of the stigma, style and ovary. The stigma is sticky which receives pollens from the anther through pollen tube. Ovary contains ovules which has female eggs. After pollination the male eggs fuses with the female eggs in the ovary, as a result zygote is formed. This process is known as fertilization.

Q.6 Why do insect-pollinated flowers produce nectar?

Ans. Insect pollinated flowers are sweet smelling because they produce nectar. Nectar is produced to attract the insects. While they are busy enjoying the nectar, the sticky pollen grains stick to its body and they help in pollination.

Q.7 What are pollen grains? Why are they produced in the flower?

Ans. Pollen grains are yellow, powdery microscopic substances which are formed in the male reproductive part of the flower.

Pollen grains are transported by various means like wind, water and insects to the female reproductive part of the flower where fertilization takes place and as a result new seed is formed.

Q.8 Give one point difference between calyx and corolla.

Ans.

CALYX	COROLLA
1. It is usually green in color which consists of leaf like structures called sepals.	1.It consists of brightly colored, large and scented structures called petals.

Q.V DIFFERENCE BETWEEN THE FOLLOWING

1. COMPLETE FLOWER AND INCOMPLETE FLOWER

COMPLETE FLOWER	INCOMPLETE FLOWER
1. A flower which has all the four floral whorls is called a complete flower.	1. A flower which lacks any of the floral whorls is called an incomplete flower.

2. SELF- POLLINATION AND CROSS-POLLINATION

SELF-POLLINATION	CROSS-POLLINATION
1. The transfer of pollen grains from an anther of a flower to the stigma of same flower or another flower of the same plant is termed as self-pollination.	1. The transfer of pollen grains takes place from the anther of one flower to the stigma of another flower of the same type.

3.EPIGEAL GERMINATION AND HYPOGEAL GERMINATION V

EPIGEAL GERMINATION	HYPOGEAL GERMINATION
1. It is a type of germination in which the cotyledons emerge above the ground during germination.	1. It is a type of germination in which the cotyledons remain below the soil surface during germination.

4. ANDROECIUM AND GYNOECIUM

ANDROECIUM	GYNOECIUM
1. It is the male reproductive part of a flower which consists of anther and filament.	1. It is the female reproductive part of a flower which consists of stigma, style and ovary.

THINK CRITICALLY

1. Can fertilization occur in flowering plants without pollination?

Ans. No, fertilization cannot occur in flowering plants without pollination because for fertilization both male and female gametes are required and if pollination does not occur then male gametes will not reach to female gametes.

2. Tomato is a fruit but apple is not considered as a true fruit. Give reason.

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CH-3. Sepration Techniques

Exercise

Recalling ideas

I. SELECT THE CORRECT OPTION

1. A mixture of wheat and husk can be separated by

(a) Handpicking

(b) Winnowing

(c) Sieving

(d) None of these

2. A mixture of water and kerosene can be separated by

(a) Separating funnel

(b) Evaporation

(c) Decantation

(d) None of these

3. A mixture of iron fillings and leaves can be separated by

(a) Hand picking

(b) Magnetic separation

(c) Evaporation

(d) Sieving

4. Common salt can be separated from common salt solution by

(a) Filtration

(b) Centrifugation

(c) Evaporation

(d) Handpicking

5. A mixture of Sulphur and water can be separated by

(a) Evaporation

(b) Filtration

(c) Magnetic Separation

(d) Separation winnowing

II.STATE IF THE FOLLOWING STATEMENT ARE TRUE OR FALSE.CORRECT THE FOLLOWING STATEMENT.

1.Sedimentation and decantation method is used for separating an insoluble solid from liquid-True

2. Sieve has very small holes- True

3. The separation of sulphur from iron fillings is separated by the process of filtration-False

Correct statement- The separation of sulphur from iron fillings is separated by the process of Magnetic Separation.

4. Loading is used to separate cream from milk-False

Correct statement-. Centrifugation is used to separate cream from milk

5. Crude oil and petroleum are miscible liquids.-True

III.FILL IN THE BLANKS

1.Sand and water can be separated by Filtration

2.Coriander leaves are separated from mint leaves by Handpicking

3.Pure liquid is obtained from the solution of a salt in the liquid by Distillation

4.Two immiscible liquid are separated by using a Separating Funnel

5.The broken pieces of rice from the whole rice can be separated by Sieving

6.Cooking oil can be separated from milk by Separating Funnel

IV.MATCH THE FOLLOWING

Column A	Column B
1.Sedimentation	(a)Separation of suspended particles of a substance
2.Winnowing	(b)Process of settling the suspended particles faster
3.Loading	(c)Separation of solid dissolved in a liquid
4.Centrifugation	(d) Separating unwanted components from a mixture by using wind or blowing air
5.Evaporation	(e)Settling down of heavy particles

Answers 1-(e) , 2- (d) , 3-(b) , 4-(a) , 5-(c)

V. Find the odd one out and give scientific reason for your answer

1. Distillate, Precipitate, Filtrate, Filter paper.

Reason- Rest all are end products of separation.

2.Solution, Compounds, Suspension, Emulsions.

Reason – Rest all are mixtures.

3. Winnowing , Decantation, Filtration, Distillation

Reason- Rest all are used to separate Solid-Liquid mixture.

4. Chalk Powder and Water , Clay and water , Saw Dust and Water , Common Salt and Water.t

Reason- Rest all are insoluble in water.

Understanding Ideas

I.NAME THE FOLLOWING

1.The process which is used to obtain common salt from sea water.

Ans- Evaporation

2.The process which is used to separate cream from milk.

Ans- Centrifugation

3.The process used to separate two immiscible liquids.

Ans-Separating funnel

4.Two commonly known mixtures whose components are useful after separation

Ans- Salt-water and sugar-water

5.The process which is used to separate tea leaves from tea liquor:

Ans- Decantation

II. Define the following terms:

1. Sieving-It is a process to separate undesirable components in a Solid-Solid mixture by using a sieve.
2. Sediment-Matter that settles to the bottom of the liquid is called Sediment.

3. Supernatant Liquid-A liquid floating on the surface above the sediment or precipitate is called Supernatant Liquid.
4. Evaporation- The process in which liquid changes into vapour without boiling is called Evaporation.
5. Centrifugation- It is a method used to separate fine suspended particles in a liquid.

III.ANSWER THE FOLLOWING IN SHORT

1.Why do we sprinkle water before sweeping in a dusty room?

Ans- We sprinkle water before sweeping in a dusty room as it helps the dust to settle down and also prevent the dust to fly up again in the room.

2.The mixture of a powdered white solid P and Q can be separated by filtration. The solid P is left behind on the paper but clear liquid Q passes through the filter paper and collects in the beaker kept below.

(a) Name one solid which could be like P.

Ans- Sand.

(b) Name the liquid which Q could be

Ans- Water.

(c) What name is given to the solid left on the paper?

Ans- Sand is left behind is named as ‘Residue’.

(d)What name is given to the clear liquid collected in the beaker ?

Ans-Clear liquid is named as ‘Filtrate’.

3. The mixture contains two components W and X. The component W is a white solid which is soluble in water. It is obtain on a large scale from sea water by the process y. The component X consists of tiny pieces called fillings which can be attracted and removed from the mixture by a device Z.

(a) What do you think is component W?

Ans-Salt.

(b) Name the process Y.

Ans Evaporation.

(c) Name the component X.

Ans-Iron fillings.

(d) What could the device Z be?

Ans-Magnet.

4. How will you separate husk or dirt particles from a given sample of pulses before cooking?

Ans- The mixture of wheat and husk is taken in a vessel is allowed to fall down from a height. The wind carries the lighter husk with it. The wheat grains being heavier falls vertically down to the ground and form a heap.

IV.ANSWER THE FOLLOWING QUESTION IN DETAIL.

1. What is meant by separation of constituents of mixture? Why it is done?

Ans- The process by which unwanted or harmful component of a mixture is removed to get a desirable or pure component is called separation of constituents of mixture.

It is done for various purposes

- To remove harmful components.
- To remove unwanted components.
- To obtain pure samples.

2.How will you separate iron nails from sawdust?

Ans- When the magnet is moved over the mixture, iron nails cling to the magnet , leaving saw dust behind , thus iron nails from saw dust is separated by magnetic separation method.

3. Describe a method to separate iron dust from sulphur powder.

Ans- Take a mixture of iron dust and sulphur powder

- Wrap the plastic bag around the magnet bar.
- Move the magnet bar over the china dish.
- Iron dust will be attracted to the magnetic bar.
- Carefully remove plastic bag and scrap off iron dust.
- Thus iron dust is separated from sulphur powder.

4. Mention the methods that can be used for separation of the following

A) wheat, sugar and husk
Ans- winnowing-To separate husk from the mixture
Sieving- To separate wheat from sugar
B) Rice , gram and iron fillings
Ans Magnetic separation- To separate iron fillings from mixture
Sieving - To separate gram from rice

C) Sand black gram and husk
Winnowing- To separate husk from the mixture
Ans-Sieving to separate black gram from sand

5. Is it possible to separate sugar mixed with wheat flour? If yes, how will you do it?

Ans- Yes by sieving method.
Pour the wheat flour containing sugar in the sieve.
Shake the sieve over the vessel,Collect the wheat flour that passes through the sieve in the vessel leaving sugar on the sieve.

6. How will you separate a mixture of iron fillings, chalk powder and common salt?

- Ans-When a magnet is moved over the mixture, Iron fillings cling to the magnet leaving chalk powder and common salt behind.
- Now add some water to the residual mixture and stir it.
- Filter the mixture chalk powder being insoluble remains on the filter paper leaving salt solution behind.
- Now evaporate the salt solution till all the water evaporates.
- The white solid left behind is common salt.

7.By giving two reasons prove that

(a) Air is a mixture

- Ans-It is mixture of several gases
- These gases in the air are distributed uniformly

(b) Water is a Compound

It is formed by the chemical combination of hydrogen and oxygen elements.

These chemical combine together in a fixed proportion by weight

- THINK CRITICALLY

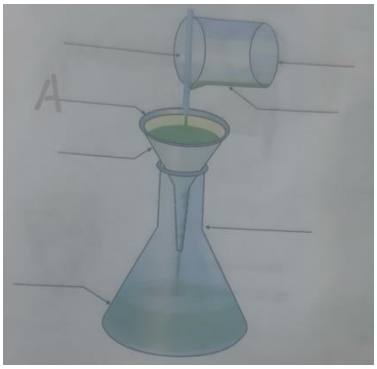
1.Why does visibility increase after rainfall?.

Ans-Because with rain tiny dust particles, polluted air and gaseous dust particles suspended in the air gets washed down

2. Suspended impurities in water sink to the bottom on adding alum. Give reasons.

Ans- When alum is added to raw water it attracts to fine particles and suspended impurities in water and settles down at the bottom of the container.

- **DIAGRAM BASED QUESTION**

1. 

1.Identify the process.

Ans- Filtration.

2.Which kind of mixture can be separated by this process?

Ans-Solid-liquid heterogeneous.

3.What name is given for the solid left on the filter paper?

Ans-Residue.

4.What name is given to to the clear liquid collected in the beaker?

Ans- Filtrate.

5. Label A

Ans-Funnel.

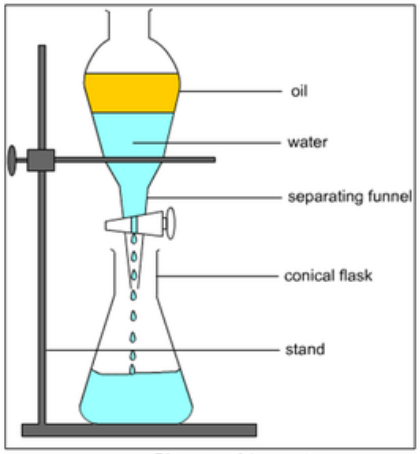


Diagram of Apparatus

1.Which liquid can be separated using separating funnel?

Ans- Immiscible liquids.

2. Which liquid remains in the separating funnel?

Ans-Lighter liquid remains in the separating funnel.

3.How many layers does the content in the separating funnel forms?

Ans- Two layers.

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Affiliated to CISCE, New Delhi

P. O. Box 24, Athwalines, Surat.

Std - VI

BIOLOGY

L-2 THE FLOWER

Q.I SELECT THE CORRECT OPTION.

1. Flowers enhance the process of:

(a) pollination in plants

(b) fertilization in plants

(c) both of them

(d) none of them

2. Pollen grains are produced in the

(a) ovary

(b) anther

(c) stigma

(d) style

3. The gynoecium consists of

(a) style, stigma, ovary

(b) anther, filament, style

(c) stigma

(d) style

4. Calyx consists of the

(a) stamens

(b) anthers

(c) sepals

(d) petals

5. Transfer of pollen grains from anther to stigma is termed as

(a) reproduction

(b) fertilization

(c) pollination

(d) fusion

6. A dicot seed has

(a) one cotyledon

(b) two cotyledons

(c) three cotyledons

(d) four cotyledons

7. A dicot seed germinates by

(a) epigeal germination

(b) hypogeal germination

(c) germination does not take place

(d) none of them

8. The fusion of male cell with the female cell in the ovary is called

(a) pollination

(b) fertilization

(c) germination

(d) vegetation

Q. II FILL IN THE BLANKS WITH THE CORRECT OPTION.

1.Pollen grains are produced in the anther.

2.All fruits are formed by the ovaries.

3.The gynoecium consists of stigma and style.

4.The brightly colored flowers are usually pollinated by insects.

5.The part of a flower that gives rise to a seed is called ovule.

Q.III STATE IF THE FOLLOWING STATEMENTS ARE TRUE OR FALSE. CORRECT THE FALSE STATEMENT.

1.The flower is transformed into a fruit. True

2.Zygote is the result of fusion of male cell with the female cell. True

3. Most flowers have colorful sepals. False

Correct statement- Most flowers have colorful petals.

4.Wind-pollinated flowers produce pollen grains in large quantity. True

5. A stamen has long stalk called style. False

Correct statement- A stamen has long stalk called filament.

Q.IV MATCH THE FOLLOWING

1. Style	(b)	(a) Androecium
2. Stamen	(a)	(b) Gynoecium
3. Fruit	(d)	(c) Outer skin of the fruit
4. Seed	(e)	(d) Ripen Ovary
5. Epicarp	(c)	(e) Ovule

Q.V Choose the odd one out and give scientific reasons.

1. Style, stigma, ovary, anther.

Reason- Rest all are female parts of a flower.

2.Calyx, corolla, androecium, stem

Reason- Rest all are parts of a flower.

3. Self-pollination, insect pollination, wind pollination, water pollination

Reason- Rest all are agents of pollination.

4. Leaf, style, ovary, stigma

Reason- Rest all are parts of Gynoecium

5. Sepals, petals, stigma, roots

Reason- Rest all are parts of a flower.

UNDERSTANDING IDEAS

Q.I Give one word for the following

1. It is the most attractive and colorful part of the plant. – Flower

2. The female reproductive organ of a flower. – Carpel

3. A process by which a dormant seed develops into a seedling in the favorable conditions of air, water and warmth. – Germination

4. The transfer of pollen grains from anther to stigma of a flower. - Pollination

5. The male reproductive part of a flower. – Androecium

6. A matured, ripen ovary. – Fruit

7. The second whorl of a flower. – Corolla

8. The sweet, juicy, and edible part of the fruit. – Mesocarp

9. A process of fusion of a male cell with a female cell in flowers. – Fertilization

10. The outer, thin and leathery part of a fruit. – Epicarp

Q.II ANSWER THE FOLLOWING QUESTIONS IN SHORT.

1. Name any four flowering plants. Also mention the color of the flowers in these plants.

Ans. Rose- Red, Sunflower- Yellow, Jasmine- White, Lotus- Pink

2. Name a flower that has all the four whorls.

Ans. Hibiscus

3. In which part of the flower is the ovule found?

Ans. Ovule is found in the ovary which is the female reproductive part of the flower.

4. What is pollination?

Ans. The process of transfer of pollen grains from the anther to the stigma of the same flower or other flower of the same type is called pollination.

5. What is meant by the term 'fertilization'?

Ans. The process of fusion of the male cell with the female cell is known as fertilization.

6. Give examples of two plants that show epigeal germination of seeds.

Ans. Cotton and Papaya shows epigeal germination of seeds.

7. What are the conditions necessary for the germination of seeds?

Ans. The conditions necessary for germination of seeds are the sufficient amount of water, air and a suitable temperature.

8. Where does fertilization occur in a flowering plant?

Ans. Fertilization occurs inside an ovary where a male cell fuses with an egg cell and forms a zygote.

Q.III ANSWER THE FOLLOWING QUESTIONS IN DETAIL.

1. What are the male and female parts of a flower? Mention the functions of each.

Ans. The male reproductive part of a flower is known as Stamen which consists of Filament and Anther.

Filament- It is a long stalk which supports the anther.

Anther- It bears yellow, powdery substances called pollen grains which take part in reproduction of flowers.

The female reproductive part is known as Carpel which consists of Stigma, Style and Ovary.

Stigma- It is a sticky part on which the pollen grains land.

Style- It is a long narrow tube which holds the stigma.

Ovary- It contains small round shaped eggs called ovules.

2. Explain the structure of a seed in detail.

Ans. The seed has an outer protective covering called the seed coat which bears a small scar on it known as Hilum. At the pointed end of a seed, a micropyle is situated very close to hilum. On removing the seed coat, the fleshy parts called cotyledons are seen which store the food for the baby plant called Embryo. An embryo has two parts called Radicle and Plumule.

3. What are the two types of germination in plants? Give two examples of each.

Ans. The two types of germination in plants are- Epigeal Germination and Hypogeal Germination.

Eg of Epigeal Germination – Cotton, Papaya

Eg. of Hypogeal Germination- Maize, Groundnut

4. Name three agents by which pollination takes place in plants. Also give two examples of plants in which pollination takes place by these agents.

Ans. The three agents by which pollination takes place in plants are wind, water and insects.

Pollination by wind – Maize, Wheat

Pollination by water – Hydrilla, Vallisneria

Pollination by Insects – Orchids, Harsingar

Q.5 What part is played by stamens and carpel of a flower in reproduction?

Ans. Stamen is the male reproductive part of the plant which consists of an anther and a filament. Anther produces male eggs in the pollen grains. Carpel is the female reproductive part of the plant which consists of the stigma, style and ovary. The stigma is sticky which receives pollens from the anther through pollen tube. Ovary contains ovules which has female eggs. After pollination the male eggs fuses with the female eggs in the ovary, as a result zygote is formed. This process is known as fertilization.

Q.6 Why do insect-pollinated flowers produce nectar?

Ans. Insect pollinated flowers are sweet smelling because they produce nectar. Nectar is produced to attract the insects. While they are busy enjoying the nectar, the sticky pollen grains stick to its body and they help in pollination.

Q.7 What are pollen grains? Why are they produced in the flower?

Ans. Pollen grains are yellow, powdery microscopic substances which are formed in the male reproductive part of the flower.

Pollen grains are transported by various means like wind, water and insects to the female reproductive part of the flower where fertilization takes place and as a result new seed is formed.

Q.8 Give one point difference between calyx and corolla.

Ans.

CALYX	COROLLA
1. It is usually green in color which consists of leaf like structures called sepals.	1.It consists of brightly colored, large and scented structures called petals.

Q.V DIFFERENCE BETWEEN THE FOLLOWING

1. COMPLETE FLOWER AND INCOMPLETE FLOWER

COMPLETE FLOWER	INCOMPLETE FLOWER
1. A flower which has all the four floral whorls is called a complete flower.	1. A flower which lacks any of the floral whorls is called an incomplete flower.

2. SELF- POLLINATION AND CROSS-POLLINATION

SELF-POLLINATION	CROSS-POLLINATION
1. The transfer of pollen grains from an anther of a flower to the stigma of same flower or another flower of the same plant is termed as self-pollination.	1. The transfer of pollen grains takes place from the anther of one flower to the stigma of another flower of the same type.

3.EPIGEAL GERMINATION AND HYPOGEAL GERMINATION V

EPIGEAL GERMINATION	HYPOGEAL GERMINATION
1. It is a type of germination in which the cotyledons emerge above the ground during germination.	1. It is a type of germination in which the cotyledons remain below the soil surface during germination.

4. ANDROECIUM AND GYNOECIUM

ANDROECIUM	GYNOECIUM
1. It is the male reproductive part of a flower which consists of anther and filament.	1. It is the female reproductive part of a flower which consists of stigma, style and ovary.

THINK CRITICALLY

1. Can fertilization occur in flowering plants without pollination?

Ans. No, fertilization cannot occur in flowering plants without pollination because for fertilization both male and female gametes are required and if pollination does not occur then male gametes will not reach to female gametes.

2. Tomato is a fruit but apple is not considered as a true fruit. Give reason.

Ans. Tomato is a fruit as it is formed from a flower and contain seeds but apple is not considered as a true fruit as it is developed from the thalamus and not from the ovary.

CH-3. Sepration Techniques

Exercise

Recalling ideas

I. SELECT THE CORRECT OPTION

1. A mixture of wheat and husk can be separated by

(a) Handpicking

(b) Winnowing

(c) Sieving

(d) None of these

2. A mixture of water and kerosene can be separated by

(a) Separating funnel

(b) Evaporation

(c) Decantation

(d) None of these

3. A mixture of iron fillings and leaves can be separated by

(a) Hand picking

(b) Magnetic separation

(c) Evaporation

(d) Sieving

4. Common salt can be separated from common salt solution by

(a) Filtration

(b) Centrifugation

(c) Evaporation

(d) Handpicking

5. A mixture of Sulphur and water can be separated by

(a) Evaporation

(b) Filtration

(c) Magnetic Separation

(d) Separation winnowing

II.STATE IF THE FOLLOWING STATEMENT ARE TRUE OR FALSE.CORRECT THE FOLLOWING STATEMENT.

1.Sedimentation and decantation method is used for separating an insoluble solid from liquid-True

2. Sieve has very small holes- True

3. The separation of sulphur from iron fillings is separated by the process of filtration-False

Correct statement- The separation of sulphur from iron fillings is separated by the process of Magnetic Separation.

4. Loading is used to separate cream from milk-False

Correct statement-. Centrifugation is used to separate cream from milk

5. Crude oil and petroleum are miscible liquids.-True

III.FILL IN THE BLANKS

1.Sand and water can be separated by Filtration

2.Coriander leaves are separated from mint leaves by Handpicking

3.Pure liquid is obtained from the solution of a salt in the liquid by Distillation

4.Two immiscible liquid are separated by using a Separating Funnel

5.The broken pieces of rice from the whole rice can be separated by Sieving

6.Cooking oil can be separated from milk by Separating Funnel

IV.MATCH THE FOLLOWING

Column A	Column B
1.Sedimentation	(a)Separation of suspended particles of a substance
2.Winnowing	(b)Process of settling the suspended particles faster
3.Loading	(c)Separation of solid dissolved in a liquid
4.Centrifugation	(d) Separating unwanted components from a mixture by using wind or blowing air
5.Evaporation	(e)Settling down of heavy particles

Answers 1-(e) , 2- (d) , 3-(b) , 4-(a) , 5-(c)

V. Find the odd one out and give scientific reason for your answer

1. Distillate, Precipitate, Filtrate, Filter paper.

Reason- Rest all are end products of separation.

2.Solution, Compounds, Suspension, Emulsions.

Reason – Rest all are mixtures.

3. Winnowing , Decantation, Filtration, Distillation

Reason- Rest all are used to separate Solid-Liquid mixture.

4. Chalk Powder and Water , Clay and water , Saw Dust and Water , Common Salt and Water.t

Reason- Rest all are insoluble in water.

Understanding Ideas

I.NAME THE FOLLOWING

1.The process which is used to obtain common salt from sea water.

Ans- Evaporation

2.The process which is used to separate cream from milk.

Ans- Centrifugation

3.The process used to separate two immiscible liquids.

Ans-Separating funnel

4.Two commonly known mixtures whose components are useful after separation

Ans- Salt-water and sugar-water

5.The process which is used to separate tea leaves from tea liquor:

Ans- Decantation

II. Define the following terms:

1. Sieving-It is a process to separate undesirable components in a Solid-Solid mixture by using a sieve.
2. Sediment-Matter that settles to the bottom of the liquid is called Sediment.

3. Supernatant Liquid-A liquid floating on the surface above the sediment or precipitate is called Supernatant Liquid.
4. Evaporation- The process in which liquid changes into vapour without boiling is called Evaporation.
5. Centrifugation- It is a method used to separate fine suspended particles in a liquid.

III.ANSWER THE FOLLOWING IN SHORT

1.Why do we sprinkle water before sweeping in a dusty room?

Ans- We sprinkle water before sweeping in a dusty room as it helps the dust to settle down and also prevent the dust to fly up again in the room.

2.The mixture of a powdered white solid P and Q can be separated by filtration. The solid P is left behind on the paper but clear liquid Q passes through the filter paper and collects in the beaker kept below.

(a) Name one solid which could be like P.

Ans- Sand.

(b) Name the liquid which Q could be

Ans- Water.

(c) What name is given to the solid left on the paper?

Ans- Sand is left behind is named as ‘Residue’.

(d)What name is given to the clear liquid collected in the beaker ?

Ans-Clear liquid is named as ‘Filtrate’.

3. The mixture contains two components W and X. The component W is a white solid which is soluble in water. It is obtain on a large scale from sea water by the process y. The component X consists of tiny pieces called fillings which can be attracted and removed from the mixture by a device Z.

(a) What do you think is component W?

Ans-Salt.

(b) Name the process Y.

Ans Evaporation.

(c) Name the component X.

Ans-Iron fillings.

(d) What could the device Z be?

Ans-Magnet.

4. How will you separate husk or dirt particles from a given sample of pulses before cooking?

Ans- The mixture of wheat and husk is taken in a vessel is allowed to fall down from a height. The wind carries the lighter husk with it. The wheat grains being heavier falls vertically down to the ground and form a heap.

IV.ANSWER THE FOLLOWING QUESTION IN DETAIL.

1. What is meant by separation of constituents of mixture? Why it is done?

Ans- The process by which unwanted or harmful component of a mixture is removed to get a desirable or pure component is called separation of constituents of mixture.

It is done for various purposes

- To remove harmful components.
- To remove unwanted components.
- To obtain pure samples.

2.How will you separate iron nails from sawdust?

Ans- When the magnet is moved over the mixture, iron nails cling to the magnet , leaving saw dust behind , thus iron nails from saw dust is separated by magnetic separation method.

3. Describe a method to separate iron dust from sulphur powder.

Ans- Take a mixture of iron dust and sulphur powder

- Wrap the plastic bag around the magnet bar.
- Move the magnet bar over the china dish.
- Iron dust will be attracted to the magnetic bar.
- Carefully remove plastic bag and scrap off iron dust.
- Thus iron dust is separated from sulphur powder.

4. Mention the methods that can be used for separation of the following

A) wheat, sugar and husk
Ans- winnowing-To separate husk from the mixture
Sieving- To separate wheat from sugar
B) Rice , gram and iron fillings
Ans Magnetic separation- To separate iron fillings from mixture
Sieving - To separate gram from rice

C) Sand black gram and husk
Winnowing- To separate husk from the mixture
Ans-Sieving to separate black gram from sand

5. Is it possible to separate sugar mixed with wheat flour? If yes, how will you do it?

Ans- Yes by sieving method.
Pour the wheat flour containing sugar in the sieve.
Shake the sieve over the vessel,Collect the wheat flour that passes through the sieve in the vessel leaving sugar on the sieve.

6. How will you separate a mixture of iron fillings, chalk powder and common salt?

- Ans-When a magnet is moved over the mixture, Iron fillings cling to the magnet leaving chalk powder and common salt behind.
- Now add some water to the residual mixture and stir it.
- Filter the mixture chalk powder being insoluble remains on the filter paper leaving salt solution behind.
- Now evaporate the salt solution till all the water evaporates.
- The white solid left behind is common salt.

7.By giving two reasons prove that

(a) Air is a mixture

- Ans-It is mixture of several gases
- These gases in the air are distributed uniformly

(b) Water is a Compound

It is formed by the chemical combination of hydrogen and oxygen elements.

These chemical combine together in a fixed proportion by weight

- THINK CRITICALLY

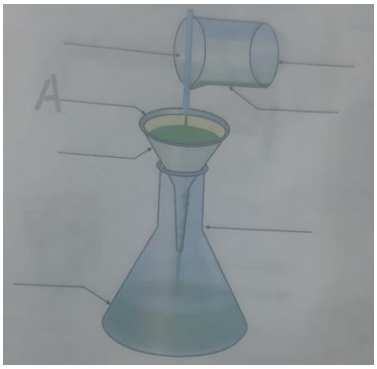
1.Why does visibility increase after rainfall?.

Ans-Because with rain tiny dust particles, polluted air and gaseous dust particles suspended in the air gets washed down

2. Suspended impurities in water sink to the bottom on adding alum. Give reasons.

Ans- When alum is added to raw water it attracts to fine particles and suspended impurities in water and settles down at the bottom of the container.

- **DIAGRAM BASED QUESTION**

1. 

1.Identify the process.

Ans- Filtration.

2.Which kind of mixture can be separated by this process?

Ans-Solid-liquid heterogeneous.

3.What name is given for the solid left on the filter paper?

Ans-Residue.

4.What name is given to to the clear liquid collected in the beaker?

Ans- Filtrate.

5. Label A

Ans-Funnel.

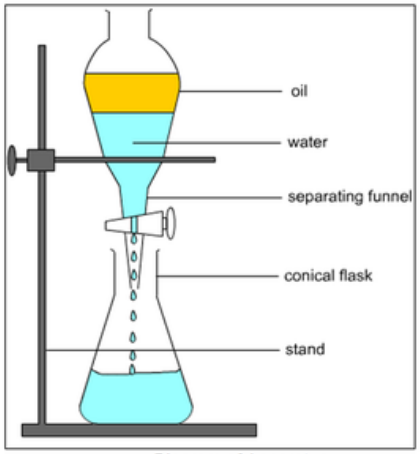


Diagram of Apparatus

1.Which liquid can be separated using separating funnel?

Ans- Immiscible liquids.

2. Which liquid remains in the separating funnel?

Ans-Lighter liquid remains in the separating funnel.

3.How many layers does the content in the separating funnel forms?

Ans- Two layers.

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Std - VI

BIOLOGY

L-2 THE FLOWER

Q.I SELECT THE CORRECT OPTION.

1. Flowers enhance the process of:

(a) pollination in plants

(b) fertilization in plants

(c) both of them

(d) none of them

2. Pollen grains are produced in the

(a) ovary

(b) anther

(c) stigma

(d) style

3. The gynoecium consists of

(a) style, stigma, ovary

(b) anther, filament, style

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4. Calyx consists of the

(a) stamens

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(c) sepals

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5. Transfer of pollen grains from anther to stigma is termed as

(a) reproduction

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7. A dicot seed germinates by

(a) epigeal germination

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8. The fusion of male cell with the female cell in the ovary is called

(a) pollination

(b) fertilization

(c) germination

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Q. II FILL IN THE BLANKS WITH THE CORRECT OPTION.

1.Pollen grains are produced in the anther.

2.All fruits are formed by the ovaries.

3.The gynoecium consists of stigma and style.

4.The brightly colored flowers are usually pollinated by insects.

5.The part of a flower that gives rise to a seed is called ovule.

Q.III STATE IF THE FOLLOWING STATEMENTS ARE TRUE OR FALSE. CORRECT THE FALSE STATEMENT.

1.The flower is transformed into a fruit. True

2.Zygote is the result of fusion of male cell with the female cell. True

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Correct statement- Most flowers have colorful petals.

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Correct statement- A stamen has long stalk called filament.

Q.IV MATCH THE FOLLOWING

1. Style	(b)	(a) Androecium
2. Stamen	(a)	(b) Gynoecium
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5. Epicarp	(c)	(e) Ovule

Q.V Choose the odd one out and give scientific reasons.

1. Style, stigma, ovary, anther.

Reason- Rest all are female parts of a flower.

2.Calyx, corolla, androecium, stem

Reason- Rest all are parts of a flower.

3. Self-pollination, insect pollination, wind pollination, water pollination

Reason- Rest all are agents of pollination.

4. Leaf, style, ovary, stigma

Reason- Rest all are parts of Gynoecium

5. Sepals, petals, stigma, roots

Reason- Rest all are parts of a flower.

UNDERSTANDING IDEAS

Q.I Give one word for the following

1. It is the most attractive and colorful part of the plant. – Flower

2. The female reproductive organ of a flower. – Carpel

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Ans. Hibiscus

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Ans.

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EPIGEAL GERMINATION	HYPOGEAL GERMINATION
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2. Tomato is a fruit but apple is not considered as a true fruit. Give reason.

Ans. Tomato is a fruit as it is formed from a flower and contain seeds but apple is not considered as a true fruit as it is developed from the thalamus and not from the ovary.

CH-3. Sepration Techniques

Exercise

Recalling ideas

I. SELECT THE CORRECT OPTION

1. A mixture of wheat and husk can be separated by

(a) Handpicking

(b) Winnowing

(c) Sieving

(d) None of these

2. A mixture of water and kerosene can be separated by

(a) Separating funnel

(b) Evaporation

(c) Decantation

(d) None of these

3. A mixture of iron fillings and leaves can be separated by

(a) Hand picking

(b) Magnetic separation

(c) Evaporation

(d) Sieving

4. Common salt can be separated from common salt solution by

(a) Filtration

(b) Centrifugation

(c) Evaporation

(d) Handpicking

5. A mixture of Sulphur and water can be separated by

(a) Evaporation

(b) Filtration

(c) Magnetic Separation

(d) Separation winnowing

II.STATE IF THE FOLLOWING STATEMENT ARE TRUE OR FALSE.CORRECT THE FOLLOWING STATEMENT.

1.Sedimentation and decantation method is used for separating an insoluble solid from liquid-True

2. Sieve has very small holes- True

3. The separation of sulphur from iron fillings is separated by the process of filtration-False

Correct statement- The separation of sulphur from iron fillings is separated by the process of Magnetic Separation.

4. Loading is used to separate cream from milk-False

Correct statement-. Centrifugation is used to separate cream from milk

5. Crude oil and petroleum are miscible liquids.-True

III.FILL IN THE BLANKS

1.Sand and water can be separated by Filtration

2.Coriander leaves are separated from mint leaves by Handpicking

3.Pure liquid is obtained from the solution of a salt in the liquid by Distillation

4.Two immiscible liquid are separated by using a Separating Funnel

5.The broken pieces of rice from the whole rice can be separated by Sieving

6.Cooking oil can be separated from milk by Separating Funnel

IV.MATCH THE FOLLOWING

Column A	Column B
1.Sedimentation	(a)Separation of suspended particles of a substance
2.Winnowing	(b)Process of settling the suspended particles faster
3.Loading	(c)Separation of solid dissolved in a liquid
4.Centrifugation	(d) Separating unwanted components from a mixture by using wind or blowing air
5.Evaporation	(e)Settling down of heavy particles

Answers 1-(e) , 2- (d) , 3-(b) , 4-(a) , 5-(c)

V. Find the odd one out and give scientific reason for your answer

1. Distillate, Precipitate, Filtrate, Filter paper.

Reason- Rest all are end products of separation.

2.Solution, Compounds, Suspension, Emulsions.

Reason – Rest all are mixtures.

3. Winnowing , Decantation, Filtration, Distillation

Reason- Rest all are used to separate Solid-Liquid mixture.

4. Chalk Powder and Water , Clay and water , Saw Dust and Water , Common Salt and Water.t

Reason- Rest all are insoluble in water.

Understanding Ideas

I.NAME THE FOLLOWING

1.The process which is used to obtain common salt from sea water.

Ans- Evaporation

2.The process which is used to separate cream from milk.

Ans- Centrifugation

3.The process used to separate two immiscible liquids.

Ans-Separating funnel

4.Two commonly known mixtures whose components are useful after separation

Ans- Salt-water and sugar-water

5.The process which is used to separate tea leaves from tea liquor:

Ans- Decantation

II. Define the following terms:

1. Sieving-It is a process to separate undesirable components in a Solid-Solid mixture by using a sieve.
2. Sediment-Matter that settles to the bottom of the liquid is called Sediment.

3. Supernatant Liquid-A liquid floating on the surface above the sediment or precipitate is called Supernatant Liquid.
4. Evaporation- The process in which liquid changes into vapour without boiling is called Evaporation.
5. Centrifugation- It is a method used to separate fine suspended particles in a liquid.

III.ANSWER THE FOLLOWING IN SHORT

1.Why do we sprinkle water before sweeping in a dusty room?

Ans- We sprinkle water before sweeping in a dusty room as it helps the dust to settle down and also prevent the dust to fly up again in the room.

2.The mixture of a powdered white solid P and Q can be separated by filtration. The solid P is left behind on the paper but clear liquid Q passes through the filter paper and collects in the beaker kept below.

(a) Name one solid which could be like P.

Ans- Sand.

(b) Name the liquid which Q could be

Ans- Water.

(c) What name is given to the solid left on the paper?

Ans- Sand is left behind is named as ‘Residue’.

(d)What name is given to the clear liquid collected in the beaker ?

Ans-Clear liquid is named as ‘Filtrate’.

3. The mixture contains two components W and X. The component W is a white solid which is soluble in water. It is obtain on a large scale from sea water by the process y. The component X consists of tiny pieces called fillings which can be attracted and removed from the mixture by a device Z.

(a) What do you think is component W?

Ans-Salt.

(b) Name the process Y.

Ans Evaporation.

(c) Name the component X.

Ans-Iron fillings.

(d) What could the device Z be?

Ans-Magnet.

4. How will you separate husk or dirt particles from a given sample of pulses before cooking?

Ans- The mixture of wheat and husk is taken in a vessel is allowed to fall down from a height. The wind carries the lighter husk with it. The wheat grains being heavier falls vertically down to the ground and form a heap.

IV.ANSWER THE FOLLOWING QUESTION IN DETAIL.

1. What is meant by separation of constituents of mixture? Why it is done?

Ans- The process by which unwanted or harmful component of a mixture is removed to get a desirable or pure component is called separation of constituents of mixture.

It is done for various purposes

- To remove harmful components.
- To remove unwanted components.
- To obtain pure samples.

2.How will you separate iron nails from sawdust?

Ans- When the magnet is moved over the mixture, iron nails cling to the magnet , leaving saw dust behind , thus iron nails from saw dust is separated by magnetic separation method.

3. Describe a method to separate iron dust from sulphur powder.

Ans- Take a mixture of iron dust and sulphur powder

- Wrap the plastic bag around the magnet bar.
- Move the magnet bar over the china dish.
- Iron dust will be attracted to the magnetic bar.
- Carefully remove plastic bag and scrap off iron dust.
- Thus iron dust is separated from sulphur powder.

4. Mention the methods that can be used for separation of the following

A) wheat, sugar and husk
Ans- winnowing-To separate husk from the mixture
Sieving- To separate wheat from sugar
B) Rice , gram and iron fillings
Ans Magnetic separation- To separate iron fillings from mixture
Sieving - To separate gram from rice

C) Sand black gram and husk
Winnowing- To separate husk from the mixture
Ans-Sieving to separate black gram from sand

5. Is it possible to separate sugar mixed with wheat flour? If yes, how will you do it?

Ans- Yes by sieving method.
Pour the wheat flour containing sugar in the sieve.
Shake the sieve over the vessel,Collect the wheat flour that passes through the sieve in the vessel leaving sugar on the sieve.

6. How will you separate a mixture of iron fillings, chalk powder and common salt?

- Ans-When a magnet is moved over the mixture, Iron fillings cling to the magnet leaving chalk powder and common salt behind.
- Now add some water to the residual mixture and stir it.
- Filter the mixture chalk powder being insoluble remains on the filter paper leaving salt solution behind.
- Now evaporate the salt solution till all the water evaporates.
- The white solid left behind is common salt.

7.By giving two reasons prove that

(a) Air is a mixture

- Ans-It is mixture of several gases
- These gases in the air are distributed uniformly

(b) Water is a Compound

It is formed by the chemical combination of hydrogen and oxygen elements.

These chemical combine together in a fixed proportion by weight

- THINK CRITICALLY

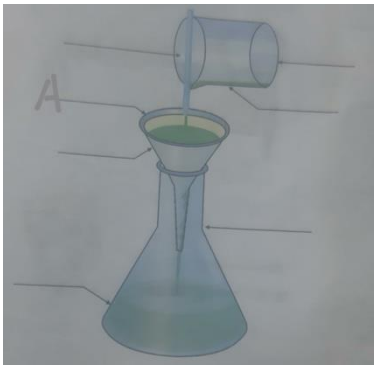
1.Why does visibility increase after rainfall?.

Ans-Because with rain tiny dust particles, polluted air and gaseous dust particles suspended in the air gets washed down

2. Suspended impurities in water sink to the bottom on adding alum. Give reasons.

Ans- When alum is added to raw water it attracts to fine particles and suspended impurities in water and settles down at the bottom of the container.

- **DIAGRAM BASED QUESTION**

1. 

1.Identify the process.

Ans- Filtration.

2.Which kind of mixture can be separated by this process?

Ans-Solid-liquid heterogeneous.

3.What name is given for the solid left on the filter paper?

Ans-Residue.

4.What name is given to to the clear liquid collected in the beaker?

Ans- Filtrate.

5. Label A

Ans-Funnel.

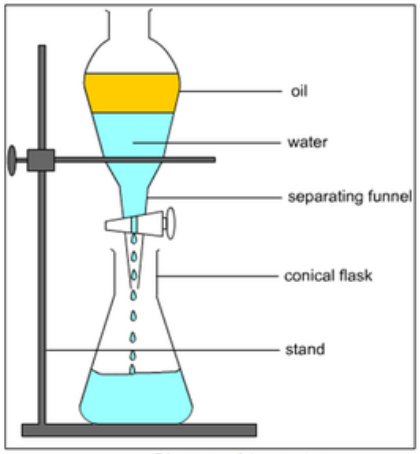


Diagram of Apparatus

1.Which liquid can be separated using separating funnel?

Ans- Immiscible liquids.

2. Which liquid remains in the separating funnel?

Ans-Lighter liquid remains in the separating funnel.

3.How many layers does the content in the separating funnel forms?

Ans- Two layers.

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Std - VI

BIOLOGY

L-2 THE FLOWER

Q.I SELECT THE CORRECT OPTION.

1. Flowers enhance the process of:

(a) pollination in plants

(b) fertilization in plants

(c) both of them

(d) none of them

2. Pollen grains are produced in the

(a) ovary

(b) anther

(c) stigma

(d) style

3. The gynoecium consists of

(a) style, stigma, ovary

(b) anther, filament, style

(c) stigma

(d) style

4. Calyx consists of the

(a) stamens

(b) anthers

(c) sepals

(d) petals

5. Transfer of pollen grains from anther to stigma is termed as

(a) reproduction

(b) fertilization

(c) pollination

(d) fusion

6. A dicot seed has

(a) one cotyledon

(b) two cotyledons

(c) three cotyledons

(d) four cotyledons

7. A dicot seed germinates by

(a) epigeal germination

(b) hypogeal germination

(c) germination does not take place

(d) none of them

8. The fusion of male cell with the female cell in the ovary is called

(a) pollination

(b) fertilization

(c) germination

(d) vegetation

Q. II FILL IN THE BLANKS WITH THE CORRECT OPTION.

1.Pollen grains are produced in the anther.

2.All fruits are formed by the ovaries.

3.The gynoecium consists of stigma and style.

4.The brightly colored flowers are usually pollinated by insects.

5.The part of a flower that gives rise to a seed is called ovule.

Q.III STATE IF THE FOLLOWING STATEMENTS ARE TRUE OR FALSE. CORRECT THE FALSE STATEMENT.

1.The flower is transformed into a fruit. True

2.Zygote is the result of fusion of male cell with the female cell. True

3. Most flowers have colorful sepals. False

Correct statement- Most flowers have colorful petals.

4.Wind-pollinated flowers produce pollen grains in large quantity. True

5. A stamen has long stalk called style. False

Correct statement- A stamen has long stalk called filament.

Q.IV MATCH THE FOLLOWING

1. Style	(b)	(a) Androecium
2. Stamen	(a)	(b) Gynoecium
3. Fruit	(d)	(c) Outer skin of the fruit
4. Seed	(e)	(d) Ripen Ovary
5. Epicarp	(c)	(e) Ovule

Q.V Choose the odd one out and give scientific reasons.

1. Style, stigma, ovary, anther.

Reason- Rest all are female parts of a flower.

2.Calyx, corolla, androecium, stem

Reason- Rest all are parts of a flower.

3. Self-pollination, insect pollination, wind pollination, water pollination

Reason- Rest all are agents of pollination.

4. Leaf, style, ovary, stigma

Reason- Rest all are parts of Gynoecium

5. Sepals, petals, stigma, roots

Reason- Rest all are parts of a flower.

UNDERSTANDING IDEAS

Q.I Give one word for the following

1. It is the most attractive and colorful part of the plant. – Flower

2. The female reproductive organ of a flower. – Carpel

3. A process by which a dormant seed develops into a seedling in the favorable conditions of air, water and warmth. – Germination

4. The transfer of pollen grains from anther to stigma of a flower. - Pollination

5. The male reproductive part of a flower. – Androecium

6. A matured, ripen ovary. – Fruit

7. The second whorl of a flower. – Corolla

8. The sweet, juicy, and edible part of the fruit. – Mesocarp

9. A process of fusion of a male cell with a female cell in flowers. – Fertilization

10. The outer, thin and leathery part of a fruit. – Epicarp

Q.II ANSWER THE FOLLOWING QUESTIONS IN SHORT.

1. Name any four flowering plants. Also mention the color of the flowers in these plants.

Ans. Rose- Red, Sunflower- Yellow, Jasmine- White, Lotus- Pink

2. Name a flower that has all the four whorls.

Ans. Hibiscus

3. In which part of the flower is the ovule found?

Ans. Ovule is found in the ovary which is the female reproductive part of the flower.

4. What is pollination?

Ans. The process of transfer of pollen grains from the anther to the stigma of the same flower or other flower of the same type is called pollination.

5. What is meant by the term 'fertilization'?

Ans. The process of fusion of the male cell with the female cell is known as fertilization.

6. Give examples of two plants that show epigeal germination of seeds.

Ans. Cotton and Papaya shows epigeal germination of seeds.

7. What are the conditions necessary for the germination of seeds?

Ans. The conditions necessary for germination of seeds are the sufficient amount of water, air and a suitable temperature.

8. Where does fertilization occur in a flowering plant?

Ans. Fertilization occurs inside an ovary where a male cell fuses with an egg cell and forms a zygote.

Q.III ANSWER THE FOLLOWING QUESTIONS IN DETAIL.

1. What are the male and female parts of a flower? Mention the functions of each.

Ans. The male reproductive part of a flower is known as Stamen which consists of Filament and Anther.

Filament- It is a long stalk which supports the anther.

Anther- It bears yellow, powdery substances called pollen grains which take part in reproduction of flowers.

The female reproductive part is known as Carpel which consists of Stigma, Style and Ovary.

Stigma- It is a sticky part on which the pollen grains land.

Style- It is a long narrow tube which holds the stigma.

Ovary- It contains small round shaped eggs called ovules.

2. Explain the structure of a seed in detail.

Ans. The seed has an outer protective covering called the seed coat which bears a small scar on it known as Hilum. At the pointed end of a seed, a micropyle is situated very close to hilum. On removing the seed coat, the fleshy parts called cotyledons are seen which store the food for the baby plant called Embryo. An embryo has two parts called Radicle and Plumule.

3. What are the two types of germination in plants? Give two examples of each.

Ans. The two types of germination in plants are- Epigeal Germination and Hypogeal Germination.

Eg of Epigeal Germination – Cotton, Papaya

Eg. of Hypogeal Germination- Maize, Groundnut

4. Name three agents by which pollination takes place in plants. Also give two examples of plants in which pollination takes place by these agents.

Ans. The three agents by which pollination takes place in plants are wind, water and insects.

Pollination by wind – Maize, Wheat

Pollination by water – Hydrilla, Vallisneria

Pollination by Insects – Orchids, Harsingar

Q.5 What part is played by stamens and carpel of a flower in reproduction?

Ans. Stamen is the male reproductive part of the plant which consists of an anther and a filament. Anther produces male eggs in the pollen grains. Carpel is the female reproductive part of the plant which consists of the stigma, style and ovary. The stigma is sticky which receives pollens from the anther through pollen tube. Ovary contains ovules which has female eggs. After pollination the male eggs fuses with the female eggs in the ovary, as a result zygote is formed. This process is known as fertilization.

Q.6 Why do insect-pollinated flowers produce nectar?

Ans. Insect pollinated flowers are sweet smelling because they produce nectar. Nectar is produced to attract the insects. While they are busy enjoying the nectar, the sticky pollen grains stick to its body and they help in pollination.

Q.7 What are pollen grains? Why are they produced in the flower?

Ans. Pollen grains are yellow, powdery microscopic substances which are formed in the male reproductive part of the flower.

Pollen grains are transported by various means like wind, water and insects to the female reproductive part of the flower where fertilization takes place and as a result new seed is formed.

Q.8 Give one point difference between calyx and corolla.

Ans.

CALYX	COROLLA
1. It is usually green in color which consists of leaf like structures called sepals.	1.It consists of brightly colored, large and scented structures called petals.

Q.V DIFFERENCE BETWEEN THE FOLLOWING

1. COMPLETE FLOWER AND INCOMPLETE FLOWER

COMPLETE FLOWER	INCOMPLETE FLOWER
1. A flower which has all the four floral whorls is called a complete flower.	1. A flower which lacks any of the floral whorls is called an incomplete flower.

2. SELF- POLLINATION AND CROSS-POLLINATION

SELF-POLLINATION	CROSS-POLLINATION
1. The transfer of pollen grains from an anther of a flower to the stigma of same flower or another flower of the same plant is termed as self-pollination.	1. The transfer of pollen grains takes place from the anther of one flower to the stigma of another flower of the same type.

3.EPIGEAL GERMINATION AND HYPOGEAL GERMINATION V

EPIGEAL GERMINATION	HYPOGEAL GERMINATION
1. It is a type of germination in which the cotyledons emerge above the ground during germination.	1. It is a type of germination in which the cotyledons remain below the soil surface during germination.

4. ANDROECIUM AND GYNOECIUM

ANDROECIUM	GYNOECIUM
1. It is the male reproductive part of a flower which consists of anther and filament.	1. It is the female reproductive part of a flower which consists of stigma, style and ovary.

THINK CRITICALLY

1. Can fertilization occur in flowering plants without pollination?

Ans. No, fertilization cannot occur in flowering plants without pollination because for fertilization both male and female gametes are required and if pollination does not occur then male gametes will not reach to female gametes.

2. Tomato is a fruit but apple is not considered as a true fruit. Give reason.

Ans. Tomato is a fruit as it is formed from a flower and contain seeds but apple is not considered as a true fruit as it is developed from the thalamus and not from the ovary.

CH-3. Sepration Techniques

Exercise

Recalling ideas

I. SELECT THE CORRECT OPTION

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(a) Handpicking

(b) Winnowing

(c) Sieving

(d) None of these

2. A mixture of water and kerosene can be separated by

(a) Separating funnel

(b) Evaporation

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(d) None of these

3. A mixture of iron fillings and leaves can be separated by

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4. Common salt can be separated from common salt solution by

(a) Filtration

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(c) Evaporation

(d) Handpicking

5. A mixture of Sulphur and water can be separated by

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(b) Filtration

(c) Magnetic Separation

(d) Separation winnowing

II.STATE IF THE FOLLOWING STATEMENT ARE TRUE OR FALSE.CORRECT THE FOLLOWING STATEMENT.

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2. Sieve has very small holes- True

3. The separation of sulphur from iron fillings is separated by the process of filtration-False

Correct statement- The separation of sulphur from iron fillings is separated by the process of Magnetic Separation.

4. Loading is used to separate cream from milk-False

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5. Crude oil and petroleum are miscible liquids.-True

III.FILL IN THE BLANKS

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3.Pure liquid is obtained from the solution of a salt in the liquid by Distillation

4.Two immiscible liquid are separated by using a Separating Funnel

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Column A	Column B
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Reason- Rest all are used to separate Solid-Liquid mixture.

4. Chalk Powder and Water , Clay and water , Saw Dust and Water , Common Salt and Water.t

Reason- Rest all are insoluble in water.

Understanding Ideas

I.NAME THE FOLLOWING

1.The process which is used to obtain common salt from sea water.

Ans- Evaporation

2.The process which is used to separate cream from milk.

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3.The process used to separate two immiscible liquids.

Ans-Separating funnel

4.Two commonly known mixtures whose components are useful after separation

Ans- Salt-water and sugar-water

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(a) Name one solid which could be like P.

Ans- Sand.

(b) Name the liquid which Q could be

Ans- Water.

(c) What name is given to the solid left on the paper?

Ans- Sand is left behind is named as ‘Residue’.

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Ans-Clear liquid is named as ‘Filtrate’.

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(a) What do you think is component W?

Ans-Salt.

(b) Name the process Y.

Ans Evaporation.

(c) Name the component X.

Ans-Iron fillings.

(d) What could the device Z be?

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A) wheat, sugar and husk
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Sieving- To separate wheat from sugar
B) Rice , gram and iron fillings
Ans Magnetic separation- To separate iron fillings from mixture
Sieving - To separate gram from rice

C) Sand black gram and husk
Winnowing- To separate husk from the mixture
Ans-Sieving to separate black gram from sand

5. Is it possible to separate sugar mixed with wheat flour? If yes, how will you do it?

Ans- Yes by sieving method.
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Shake the sieve over the vessel,Collect the wheat flour that passes through the sieve in the vessel leaving sugar on the sieve.

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- Ans-When a magnet is moved over the mixture, Iron fillings cling to the magnet leaving chalk powder and common salt behind.
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- THINK CRITICALLY

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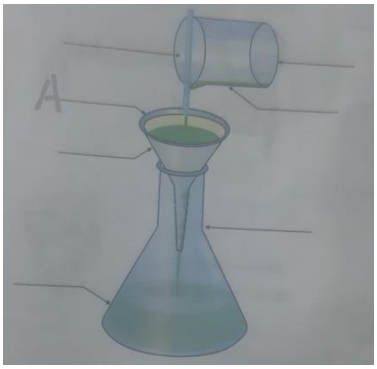
- **DIAGRAM BASED QUESTION**

1. 

1.Identify the process.

Ans- Filtration.

2.Which kind of mixture can be separated by this process?

Ans-Solid-liquid heterogeneous.

3.What name is given for the solid left on the filter paper?

Ans-Residue.

4.What name is given to to the clear liquid collected in the beaker?

Ans- Filtrate.

5. Label A

Ans-Funnel.

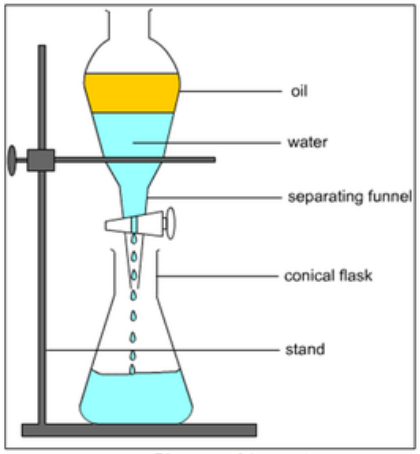


Diagram of Apparatus

1.Which liquid can be separated using separating funnel?

Ans- Immiscible liquids.

2. Which liquid remains in the separating funnel?

Ans-Lighter liquid remains in the separating funnel.

3.How many layers does the content in the separating funnel forms?

Ans- Two layers.