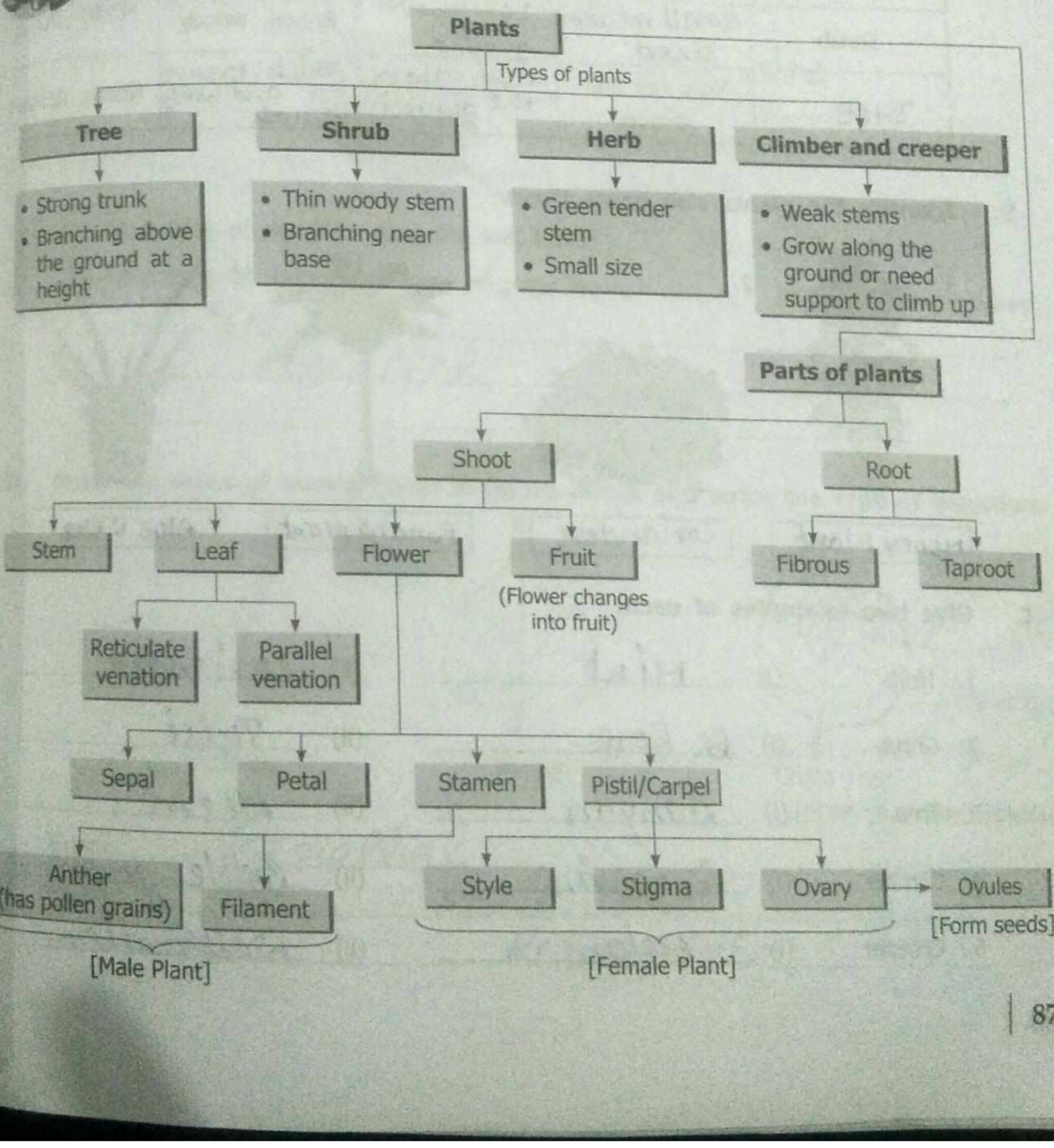
Chapter 7

Getting to Know Plants

Chapter at a Glance



Topicwise Assignment

Herbs, Shrubs and Trees

A. Complete the table:

Type of Plant	Size	Branching place	Stem colour and type	Examples
Herb	Very small	At the base of stem	Green and tender	Mint, coriander
Shrub	small medium sized	Low above the ground	Brown, woody	Rose, Tulsi
Tree	Very tall and strong	High above the ground	Thick, brown and woody trunk	Neem, Banyan

B. Identify the plants and name them.

1. 
Money plant

2. 
Coriander

3. 
Banana plant

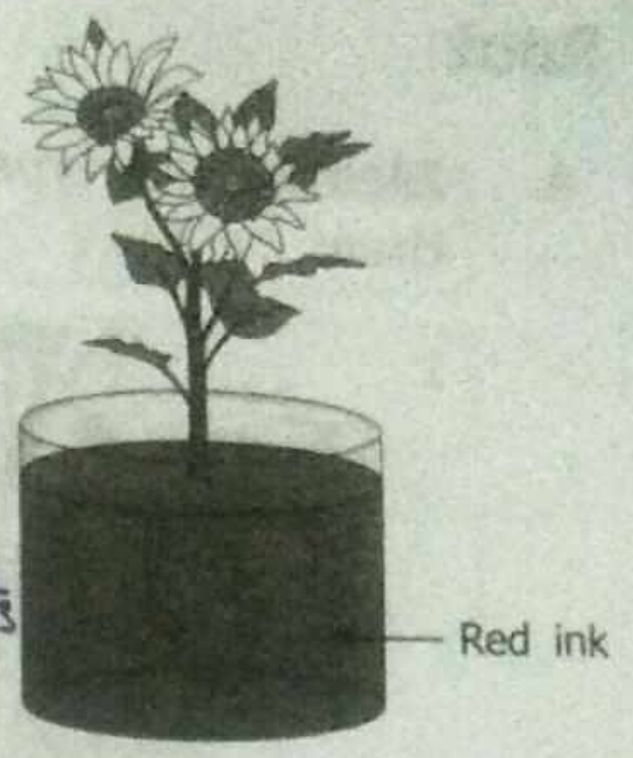
4. 
Aloe vera

C. Give two examples of each:

1. Herb (i) Mint (ii) Coriander
2. Shrub (i) Rose (ii) Tulsi
3. Tree (i) Banyan (ii) Neem
4. Climber (i) Grapevine (ii) Bottle gourd
5. Creeper (i) Melon (ii) watermelon

Stem

A. Rajan keeps a herb with white flowers in a glass container having red ink in it. If this set up is left for four hours, what will happen? Write your observation and conclusion.



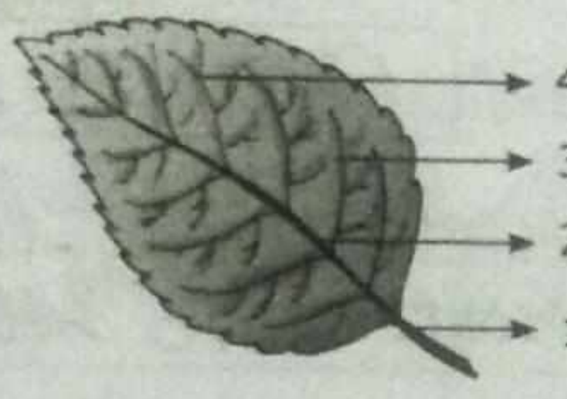
Observation - The red colour starts appearing on petals.

Conclusion: This is because stem conducts the coloured water to the petals.

Leaf

A. Observe figure and attempt the questions that follow it.

1. Label the parts 1, 2, 3 and 4 in the diagram.



4. Side veins
3. Lamina
2. Midrib
1. Petiole

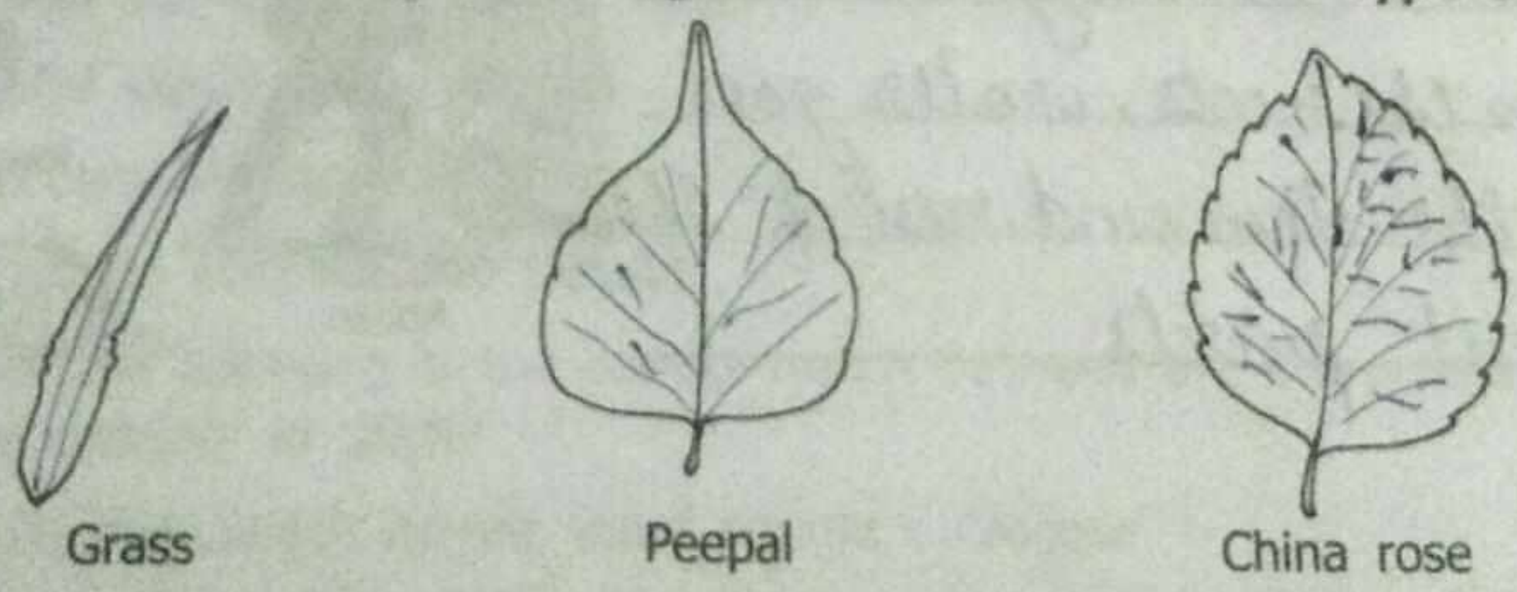
2. What type of venation does the leaf have?

3. What type of venation is seen in grass leaves? [NCERT Exemplar Problems]

2. Reticulate.

3. Parallel.

B. Draw the veins of leaves given in figure below and write the type of venation.



Grass Peepal China rose

[NCERT Exemplar Problems]

Grass: Parallel

Peepal: Reticulate

China rose: Reticulate

Root

A. Identify the types of roots shown below and write two differences between them.

1.

Taproot

2.

Fibrous root

1. a) It has a main root and lateral roots.
   b) Plants having taproots have reticulate venation

2. Fibrous root a) It has no main root. A number of thin roots appears at the base of the stem into the soil b) Plants having fibrous roots have parallel venation.

B. Between two children Rohan and Riya, who is watering the plants correctly. Tick (✓) in the box. Give reason also.

Rohan is watering the plants correctly because from the roots, water goes to the stem and rest of the plant parts

Rohan ☐

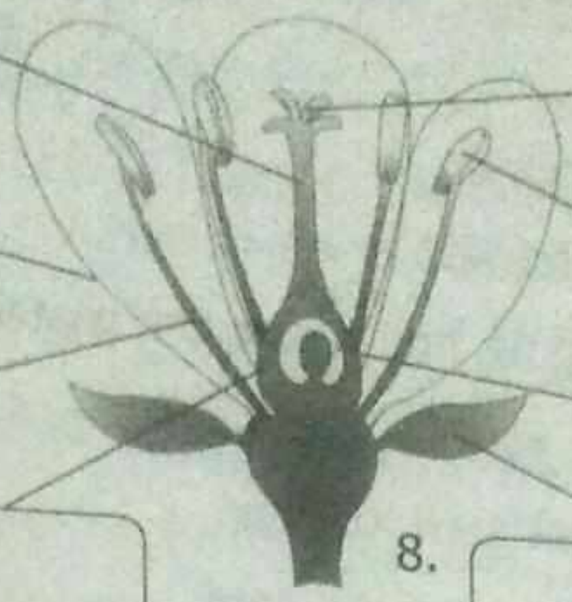
Riya ☐

Flower

A. Write the names of the parts of a flower. [NCERT]

A flower consists of sepals, petals, male part and female part. Anther and filament from form the male part, while Stigma, style and ovary form the female part

B. Label the parts of the flower shown below. [NCERT]



1. Style
2. Petals
3. Filament
4. Ovary
5. Stigma
6. Anther
7. Ovule
8. Sepal

C. Complete the paragraph.

Anther and filament form the (a) Stamen, which is the (b) male reproductive part. (c) Style, (d) Stigma and (e) Ovary constitute the (f) pistil, which is (g) female reproductive part.

Integrated Assignment

Objective Type Exercises

A. Multiple Choice Questions: [NCERT Exemplar Problems]

1. Which of the following combination of features would you observe in grass?
   (a) Parallel venation and fibrous root ☑
   (b) Parallel venation and taproot ☐
   (c) Reticulate venation and fibrous root ☐
   (d) Reticulate venation and taproot ☐
2. Which of the following is the correct match between the characteristics of stem and the category of plant?
   (a) weak stem which cannot stand upright : Creeper ☑
   (b) green tender stem : Shrub ☐
   (c) thick, hard stem with branching near the base : Tree ☐
   (d) thick, hard stem with branches high on the plant : Herb ☐

3. Which of the following is not the primary function of stem?
   (a) Conduction of water
   (b) Photosynthesis
   (c) Formation of branches
   (d) Bears flowers and fruits
4. Which of the following is not a correct match?
   (a) Petiole : attaches leaf to stem
   (b) Lamina : green flat part of leaf
   (c) Margin : gives shape to the leaf
   (d) Veins : transpiration
5. Read the following sentences about photosynthesis:
   (i) Sunlight, carbon dioxide, chlorophyll and water are necessary.
   (ii) Oxygen is absorbed.
   (iii) Leaves carry out photosynthesis.
   (iv) Proteins are made during photosynthesis.
   Choose the correct pair of sentences that are true to photosynthesis
   (a) (iii) and (iv)
   (b) (i) and (iii)
   (c) (ii) and (iv)
   (d) (i) and (iv)
6. Which of the following terms constitute the female part of the flower.
   (a) sepals, petal and stamen
   (b) stigma, style and ovary
   (c) ovary, stamen and stigma
   (d) ovary, style and stamen

B. Fill in the blanks:

1. The stem of a plant bears leaves, fruits and flowers.
2. Thick woody stem of a tree is called trunk.
3. Green leaves make their food by the process of photosynthesis using water and Carbon-di-oxide in the presence of Sunlight and chlorophyll
4. The small green leaves at the base of flowers are known as sepals.
   [NCERT Exemplar Problems]
5. The swollen basal part of the pistil is the ovary which bears the ovules.
   [NCERT Exemplar Problems]

6. Roots anchor the plants firmly in soil.
7. Two types of roots are taproot and fibrous root
8. Leaves have reticulate or parallel venation.
9. Plants having leaves with reticulate venation have taproots and those having leaves with parallel venation have fibrous roots.
10. The main parts of a flower are sepal, petal, stamen and pistil.
11. Stamen has two parts called anther and filament.
12. The young unopened flower is termed bud.

C. Correct the following statements and rewrite them.

1. Herbs are very tall and strong plants.
   Herbs are very small and green tender plants.
2. Rose is a herb and paddy is a shrub.
   Rose is a shrub and paddy is herb.
3. Stems prepare food for the plant by photosynthesis.
   leaves prepare food for the plant by photosynthesis
4. Stem absorbs water and minerals from the soil. [NCERT]
   Roots absorb water and minerals from the soil
5. Leaves hold the plant upright. [NCERT]
   Stem holds the plant upright.
6. Leaves perform the function of transpiration only. [NCERT Exemplar Problems]
   Leaves perform the function of transpiration, Photosynthesis
7. Roots conduct water to the leaves. [NCERT]
   Stem conducts water to the leaves
8. Lateral roots are present in taproot. [NCERT Exemplar Problems]
   No change as it is correct
9. The number of petals and sepals in a flower is always equal. [NCERT]
   The number of petals and sepals in a flower is different
10. Anther is a part of the pistil. [NCERT Exemplar Problems]
    Anther is a part of stamen.
11. If the sepals of a flower are joined together, its petals are also joined together. [NCERT]
    If the sepals of a flower are joined together, its petals are not necessarily joined together.

12. The visible parts of a bud are the petals. [NCERT Exemplar Problems]

The visible parts of a bud are the sepals.

13. If the petals of a flower are joined together, then the pistil is joined to the petal. [NCERT]

If the petals of a flower are joined together then the pistil is not necessary to be joined to the petal.

D. Match the parts of plant given in Column I with their function in Column II: [NCERT Exemplar Problems]

Column I	Column II
1. Flower	(a) Excretion
2. Leaf	2 (b) Photosynthesis
3. Stem	1 (c) Reproduction
4. Root	3 (d) Bears branches
	4 (e) Anchorage

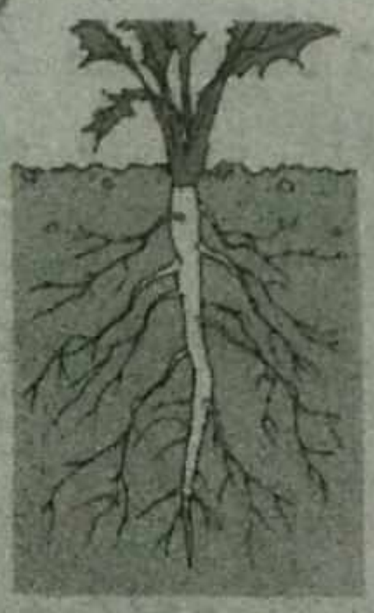
E. Which of the following plants have you seen? Of those that you have seen, which ones have flowers? [NCERT]

Grass, maize, wheat, chilli, tomato, tulsi, *peepal*, *shisham*, banyan, mango, *jamun*, guava, pomegranate, papaya, banana, lemon, sugarcane, potato, groundnut.

Chilli, tomato, tulsi, papaya, banana, lemon, sugarcane, potato, guava, banyan, jamun, mango, pomegranate,

F. Encircle plant parts hidden in the grid by going up, down or diagonally forward and backward. [NCERT]

Don't give up yourself



O	V	U	L	E	L	Y	T	S	T	E	M
V	E	I	N	W	Q	H	E	R	B	P	I
A	N	I	M	A	L	Z	E	X	R	N	D
R	F	I	L	A	M	E	N	T	M	U	R
Y	A	R	A	B	L	C	O	D	B	E	I
L	E	E	U	O	F	O	L	G	H	I	B
A	L	H	I	I	R	J	A	L	K	U	R
T	M	T	N	O	T	P	P	Q	R	R	A
E	E	N	S	T	U	F	E	H	V	W	N
P	Y	A	M	G	I	T	S	Z	Z	N	C
F	L	O	W	E	R	E	H	T	N	A	H
S	T	A	M	E	N	N	S	E	P	A	L

G. Solve the riddles given below: [NCERT Exemplar Problems]

1. "I have a green tender stem and I am much shorter than you. Who am I?"

   Herb

2. I come out first from the seed when it is soaked in water. I provide anchorage to plants. Who am I? Write another function that I perform.

   Root ; function : Roots help in absorption of water and minerals from the soil

H. Fill in the blanks with the terms that are listed below:

anther, male, ovary, ovule, petals, pistil, stamen, filament

Sepals, (a) petals, stamens and (b) pistil are the parts of a flower. Stamen is made up of (c) anthers and (d) filament and it represents the (e) male part of the flower. The female part of the flower is called the (f) pistil. The basal, swollen part of the pistil is called the (g) ovary which contains the (h) ovules. [NCERT Exemplar Problems]

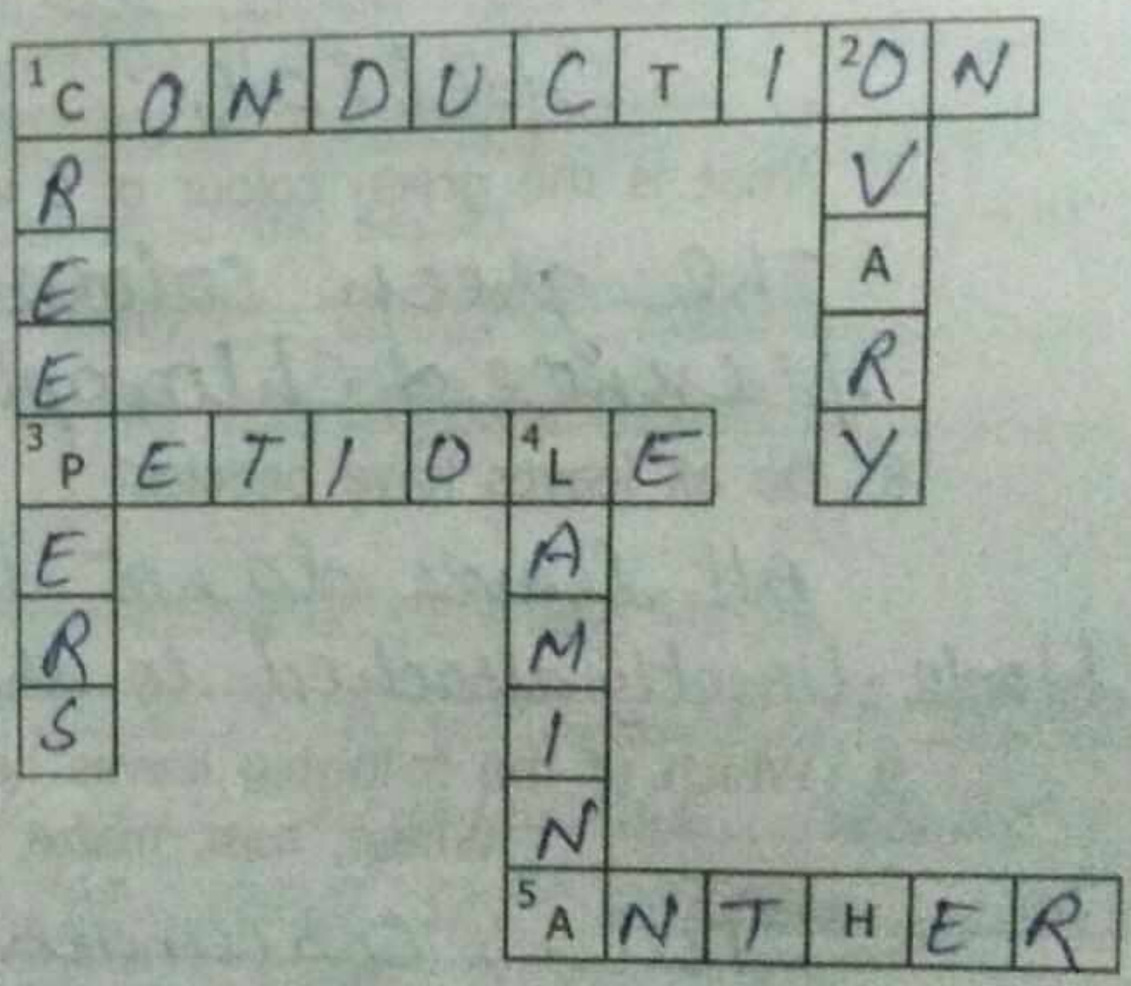
I. Solve the crossword given in figure as per the clues given below it. [NCERT Exemplar Problems]

Across:

1. The term that describes upward movement of water in a stem.
3. The part of leaf which is attached to the stem.
5. This part is attached to the tip of filament.

Down:

1. Plants that are weak and spread on the ground.
2. Ovules are present in this part of flower.
4. It is the broad part of leaf.



Subjective Type Exercises

A. Very Short Answer Questions

1. If a plant has fibrous root, what type of venation do its leaves likely to have? [NCERT]

   Parallel venation

2. If a plant has leaves with reticulate venation, what kind of roots will it have? [NCERT]

Taproot

3. Write one difference between sepal and petal.

sepal is the green part of the flower, present at the base of flower while petal is the colourful part of the flower.

4. The open end of a stem has various hollow cavities. What does it signify?

The hollow cavities show the channels or narrow tubes present inside the stem that help it to conduct essential materials.

5. If we peel off the stem from all sides, what is likely to happen to the plant and why? If we peel off the sides of the stem, the narrow tubes present in it for conduction will be ruptured. As a result, water and minerals will not reach leaves and eventually, plant will die.

6. How are leaves attached to the stem?

Leaves are attached to stem with a petiole.

7. What is the green colour of a leaf due to?

The green colour of a leaf is due to the presence of Chlorophyll in chloroplast.

8. Do all leaves have petioles?

All leaves do not have petioles. A leaf without petiole has blade directly attached to the stem and called sessile.

9. Which of the following leaves have reticulate venation? [NCERT]

Wheat, tulsi, maize, grass, coriander (*dhania*), china rose

Tulsi, coriander and china rose have reticulate venation.

10. What is the function of stem in a plant? [NCERT]

- Stem conducts water and minerals from roots to All plant parts.
- Stem carries food prepared by leaves to all plant parts.

11. Potato is rich in starch. Where does it get this starch from?

Potato gets its starch from the converted glucose or Carbohydrate prepared during the process of photosynthesis.

12. Name the part of the plant which produces its food. Name this process. [NCERT]

Leaves produces food itself by the process of photosynthesis.

13. Dig out two weeds with roots from the soil. Plant one of them in soil in pot A, while cut the roots of the other and plant in the soil in pot B. Water both of them regularly. Which one will be healthy and why?

Weed with roots planted in Pot A will be healthy because roots helps in absorption and conduction of water.

14. While choosing a flower to study, why should we avoid marigold, sunflower and chrysanthemum?

The reproductive parts of marigold, sunflower and chrysanthemum flowers are not clearly visible. So it is avoided.

15. In which part of a flower, you are likely to find the ovary? [NCERT]

The swollen basal part of the pistil contains ovary.

16. Why do we have to cut and spread the petals of bell-shaped flowers like Datura? [HOTS]

In Datura petals are joined. So we cut them lengthwise and spread them to see the inner parts of the flower clearly.

17. Name two flowers, each with joined and separated sepals. [NCERT]

(i) Datura (ii) China Rose

(i) Rose (ii) Gladiolus

B. Short Answer Questions

1. Compare and contrast the characteristics features of herbs and shrubs.

Herbs are very small-sized plants, while shrubs are slightly larger in size than the herbs.

- Herbs have green, tender and soft stem, while shrubs have strong and woody stems.

2. You must have seen money plant, beanstalk, gourd plant and grapevines. How are these different from herb, shrub and tree? What are such plants called?

Moneyplant, beanstalk, grapevine and gourd plant have weak stems which can't stand upright. So they take support of neighbouring structures such as pole, pillar etc. to stand upright. Such plants are called climber.

3. What are weeds? Why do they need to be removed from fields, lawns or pots?

weeds are unwanted plants which grow with main crops/plants in field, lawn and even in pot. They need to be regularly removed as they grow very fast and derive their food from main part. This deprives the plant/crop from necessary nutrition needed for healthy growth.

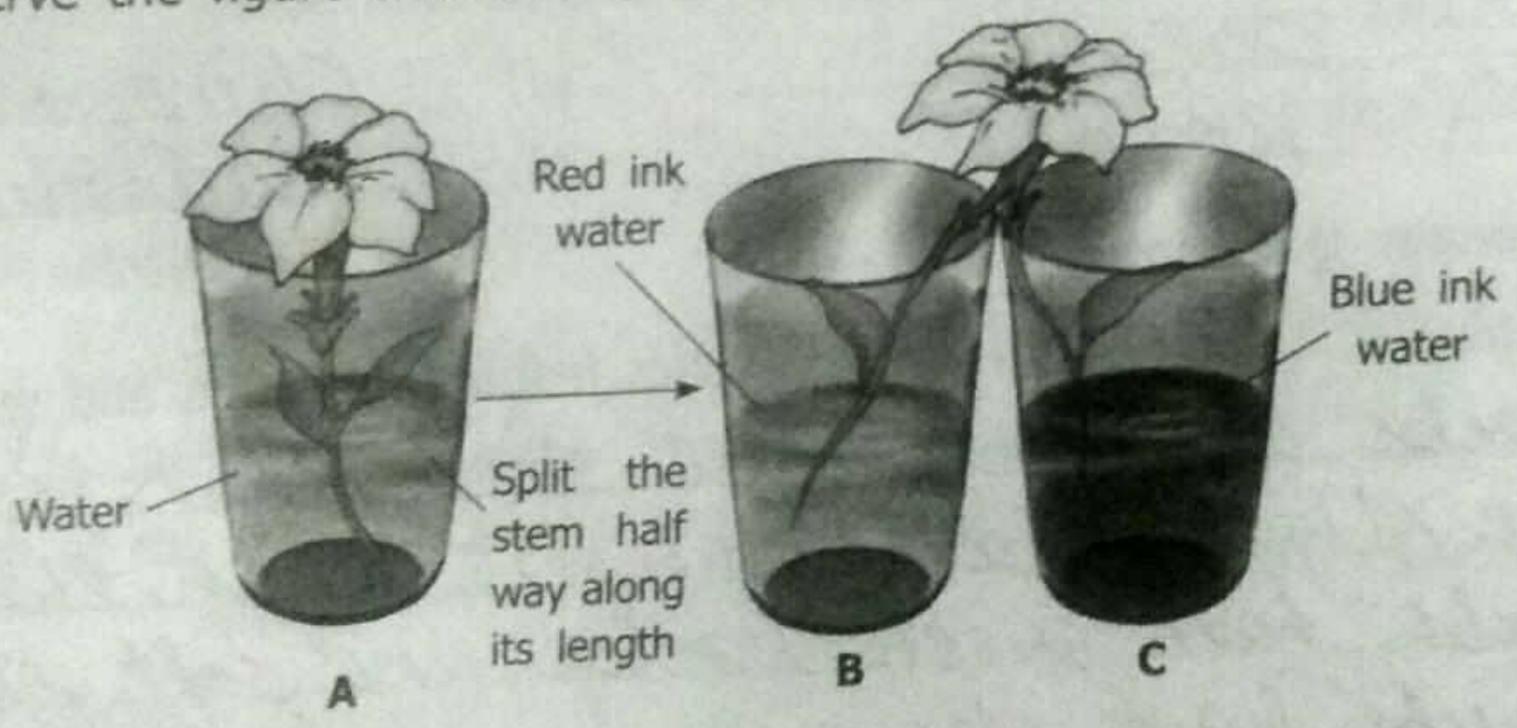
4. How are climbers different from creepers?

climbers take support of neighbouring structures to grow in vertically upward direction. creepers like climbers also have weak stems. But instead of taking support of anything, they grow along the ground.

5. How do water and dissolved minerals reach the leaves and other parts of plant attached to stem?

The water and minerals reach the leaves and other parts of the plants attached to the stem through narrow tubes inside the stem

6. Observe the figure below and answer the questions based on it.



(a) What would happen to flower put jointly in two glasses B and C?

The petals acquire both blue and red colours.

(b) Explain why it happens.

It happens because some stem tubes conduct red colour, while some of them conduct blue colour to the petals of the flower.

7. What are the two types of leaf venation? Briefly describe each of them with examples.

There are two type of leaf venation:-
• Reticulate venation :- The net like vein design on both sides of mid-rib is called reticulate venation. eg:- Mango leaves, banana leaves etc.
Parallel venation :- In which veins are parallel to each other and there is no mid rib. eg:- maize plant leaves, grasses.

8. Define the following:

(a) Photosynthesis : The process of making food by the plant with the help of CO_2 and H_2O in the presence of sunlight.

(b) Transpiration : The loss of H_2O from the surface of leaf in the form of water vapour.

9. What do you understand by leaf venation and conduction?

The design made by veins in a leaf called leaf venation. conducion is the process of transportation of water and minerals from roots to other plant parts.

10. Will a leaf taken from a potted plant kept in a darkroom for a few days turn blue-black when tested for starch? Give reasons for your answer.

[NCERT Exemplar Problems]

NO, the leaf will not turn blue-black. This is because it does not perform photosynthesis in darkroom to make new starch. The starch stored in it gets used up in few days.

11. Boojho wanted to test the presence of starch in leaves. He performed the following steps:

(a) He took a leaf and boiled it in water.

(b) He placed the leaf in a petri dish and poured some iodine over it.

He did not get the expected result. Which step did he miss? Explain.

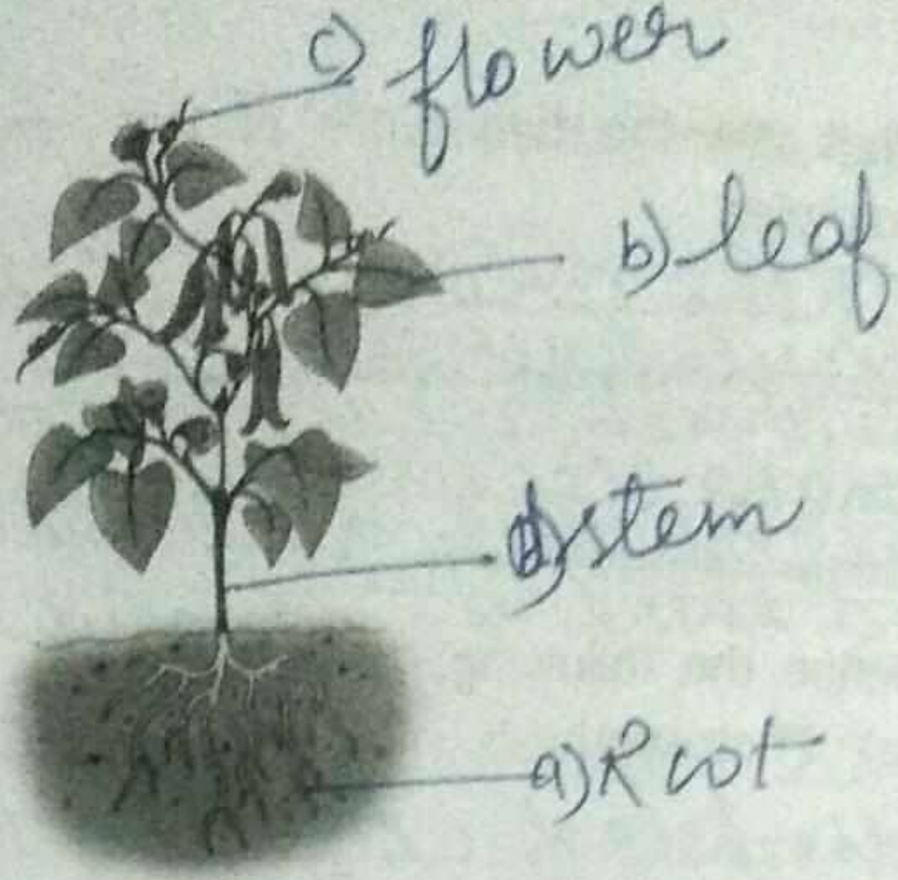
[NCERT Exemplar Problems]

He did not use spirit to boil. spirit should be used to cover the leaf immersed ~~in to~~ completely and it was needed to boil untill all green colour of leaf gets into the spirit, due to this missing step, he did not get blue-black colour after adding iodine.

12. Read the function of parts of a plant given below:

(a) fixes plant to the soil (b) prepares starch

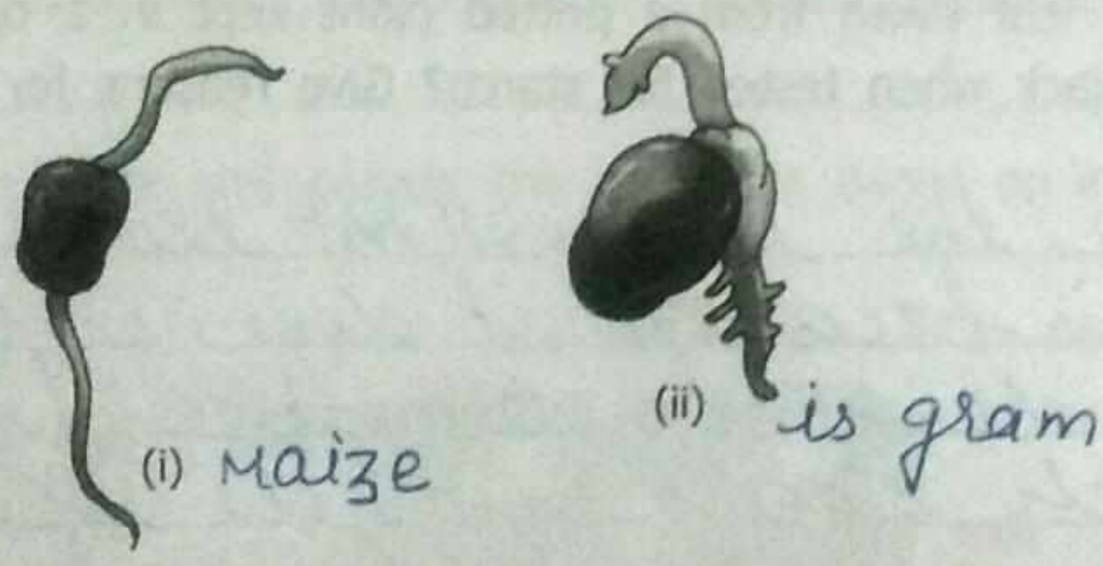
(c) takes part in reproduction (d) supports branches and bears flowers



In the diagram given in figure, label the names of the parts whose functions you have just read at the appropriate space. [NCERT Exemplar Problems]

a) Root
b) leaf
c) flower
d) stem

13. Sprouts of gram and maize were grown and young plants were observed carefully.



(i) Maize (ii) is gram

Identify gram and maize roots and write in the space provided.

(a) Similarity in roots: Roots are similar as both provide support and nutrition to the plants

(b) Difference in roots: Gram has one main root with lateral branches. This is tap root and maize has fibrous root.

14. Briefly describe the structure of taproot.

The tap root has one thick root called main root. The smaller roots branch out of main root and are called lateral roots. Root hair are seen at end of the lateral root.

15. How will you know the kind of root a plant has, by just looking at its leaves?

Or

Is it possible for you to find out whether a plant has taproot or fibrous roots by looking at the impression of its leaf on a sheet of paper? [NCERT]

The plant having reticulate leaves have taproot system, while the plant having parallel venation of leaves have fibrous root system. Hence, by just looking at venation of leaves, roots can be identified.

16. We eat many parts of plant where food is stored. Give examples of any four edible roots, leaves, stems and flowers.

Root - Radish, carrot, sweet potato, beetroot
leaves - Mint, mustard, cabbage, spinach
Stems - potato, ginger, lotus, corn
flowers - Cauliflower, cloves, pumpkin.

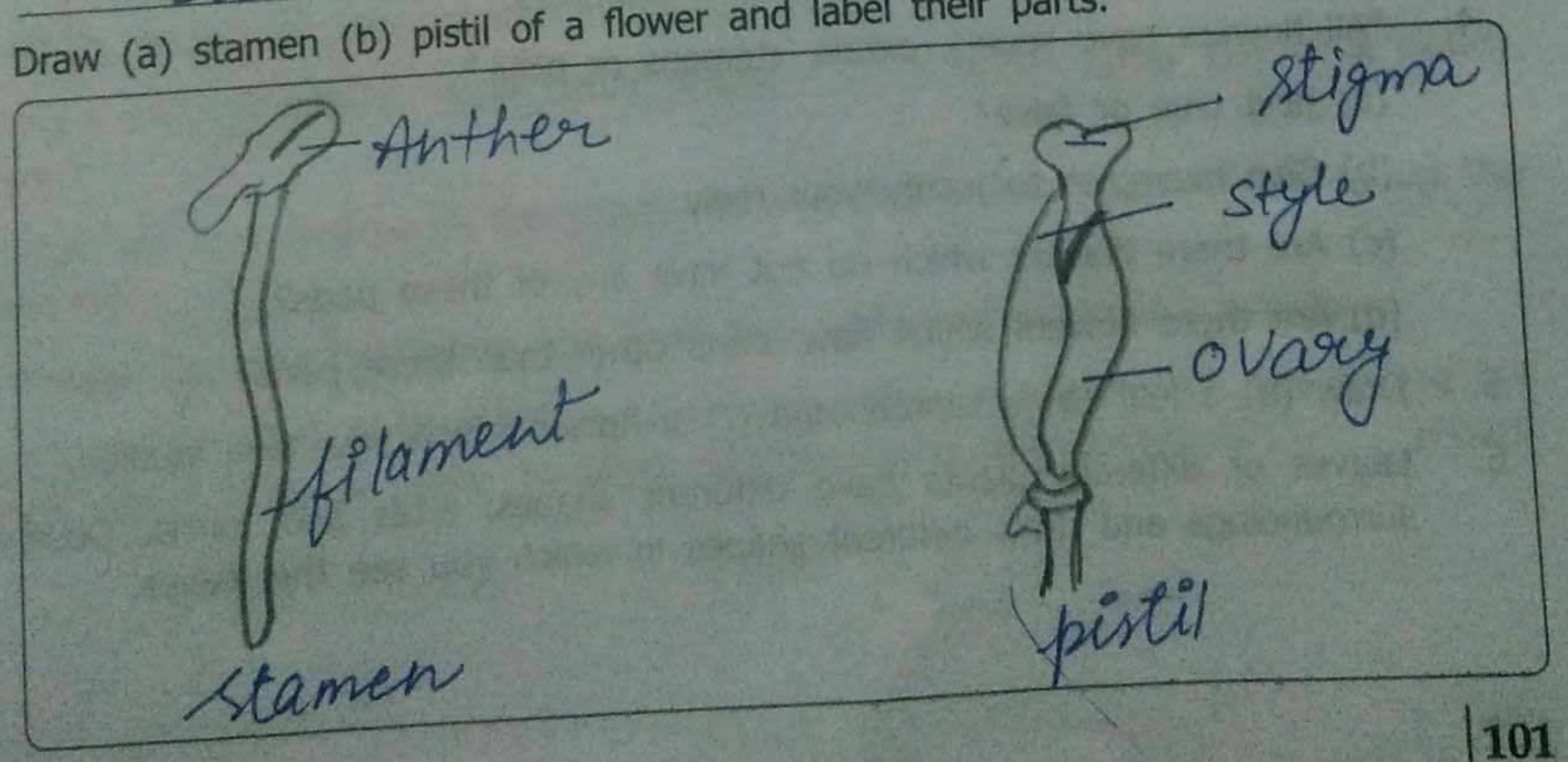
17. Can the stem of a plant be compared with a street with two-way traffic? Give reason. [NCERT Exemplar Problems]

A stem is a two-way traffic. It has tube-like structures which help in the movement of the materials upwards as well as downwards. The water and minerals absorbed by root are carried upwards, while food prepared is carried downward through stem.

18. What is a flower bud? How does it change into a flower?

The stage of a flower before it blooms is a flower bud. The petals are closed in a bud and sepals cover the closed petals. The petals open out when the flower blooms.

19. Draw (a) stamen (b) pistil of a flower and label their parts.



20. Briefly describe the structure of an ovary in a flower. Also mention what are ovules.

Ovary is the lowermost swollen part of the pist
It contains small bead-like structures arranged
properly called ovules. Ovules are female gametes which
help in the formation of zygote during plant reproduction
after fertilization.

21. Give two examples each of flowers in which:

(a) sepals and petals look similar.

(b) number of sepals is different from number of petals.

(i) Double Camellia (ii) Hydrangeas

(i) Rose (ii) Tulip