Unit 6 · Plant Growth and Movement

WORKSHEET

Full marks 32

Name _____ Class _____ Roll no. _____ Date _____ Marks _____ / 32

1 Key words [4]

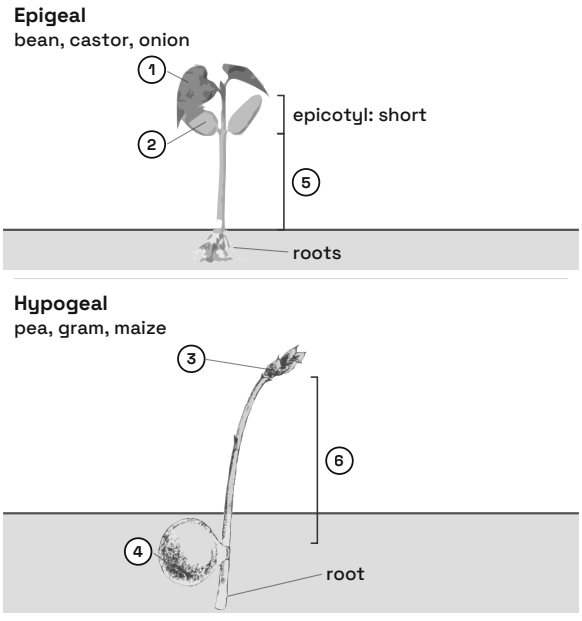
Fill in the blanks with words from the box. Two words in the box are not needed. Each blank carries 0.5 mark.

abscission	**auxin**	**florigen**	**imbibition**	**photoperiodism**	**phytochrome**	**scarification**
senescence	**vernalization**	**vivipary**				

A dry seed starts to germinate by taking up water, which is called _____. Weakening a hard seed coat so that water can enter is _____. Mangroves such as *Rhizophora* germinate while the fruit is still on the tree, which is called _____. The response of plants to the relative length of day and night is _____. The leaves sense the length of the night with the pigment _____. Promoting flowering by a cold treatment of soaked seeds or young plants is _____. The final phase of development, ending in death, is _____. The shedding of leaves, flowers and fruits is _____.

2 Label the diagram [3]

The diagram shows two kinds of germination. Write the names of the parts 1 to 6. Each carries 0.5 mark.



1. _____ **2.** _____

3. _____ **4.** _____

5. _____ **6.** _____

3 Multiple choice [5]

Choose the correct option for each of the following questions.

i. Which enzymes dissolve the walls of the abscission layer so that a leaf can fall? [1]

a. amylase and maltase
b. pectinase and cellulase
c. lipase and protease
d. catalase and peroxidase

ii. Seeds of gram and other legumes often fail to germinate because their seed coat is hard and won't let water in. What kind of dormancy is this? [1]

a. mechanical dormancy
b. physical dormancy
c. chemical dormancy
d. morphological dormancy

iii. Which feature separates a tropic movement from a nastic movement? [1]

a. tropic movements are fast and reversible
b. in a tropic movement the direction of the stimulus decides the direction of the response
c. nastic movements happen only in roots
d. tropic movements need no stimulus

iv. A short-day plant is kept on 10-hour days, but each night it is given a one-minute flash of red light at midnight. What happens? [1]

a. it flowers earlier
b. it doesn't flower
c. it flowers only at midnight
d. it becomes a long-day plant

v. Seeds are given a cold treatment, but no flowering response follows. Which of these could explain it? [1]

a. the seeds were soaked first
b. the seeds were dry
c. the cold was at 2 °C
d. the seeds were given oxygen during the cold

4 Short answers [9]

Write short answers to the following questions.

a. Differentiate between epigeal and hypogeal germination, with one example of each. [2]

b. Why do seeds buried too deep, or sown in waterlogged soil, often fail to germinate? [2]

c. Rice in the Terai flowers in autumn and wheat in spring. A grower lights a rice field with lamps for a few minutes at midnight. What will happen to its flowering, and why? **[2]**

d. Describe how a leaf falls from a plant. **[3]**

5 Long answers **[8]**

Write long answers to the following questions.

a. What is seed dormancy? Describe any three kinds of it, and write one advantage. **[4]**

b. What are tropic movements? Describe phototropism, geotropism, hydrotropism and thigmotropism, with an example of each. **[4]**

6 Think [3]

A farmer in the hills soaks winter wheat seeds and keeps them in a cold store at about 3 °C for some weeks before sowing them in spring, while his neighbor sows dry seeds kept in the same store. Predict which crop flowers on time, and explain.

7 Activity: Roots and shoots find their way (not marked)

Line a clear jar with wet blotting paper, pack the middle with wet cotton, and push four soaked bean or maize seeds between the paper and the glass, each pointing a different way. When the roots and shoots are 2–3 cm long, lay the jar on its side for two days.

Seed placed	Which way the root grew	Which way the shoot grew
pointing up		
pointing down		
pointing sideways		
after the jar was laid on its side		

Name the movement you saw, and say whether it is positive or negative for the root.