Unit 7 · Bryophyta

WORKSHEET

Full marks 32

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

1 Key words [4]

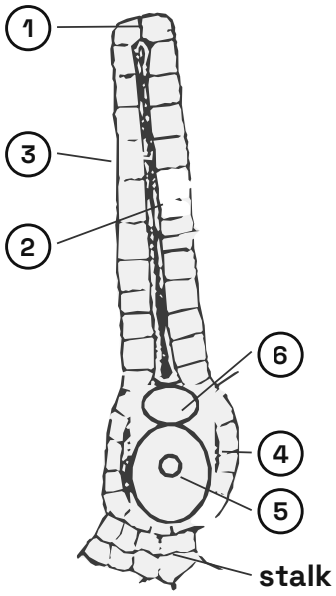
Fill in the blanks with words from the box. Two words in the box are not needed. Each blank carries 0.5 mark.

amphibians	**antheridium**	**elaters**	**gametophyte**	**gemmae**	**prothallus**	**protonema**
ramenta	**rhizoids**	**seta**				

Because their fertilization needs water, bryophytes are called the _____ of the plant kingdom. Their main plant body is the haploid _____. Instead of roots they have hair-like _____. *Marchantia* multiplies most often by small green discs, the _____, made in cups on its upper surface. Its male sex organ, the _____, makes biflagellate antherozoids. The stalk joining the foot to the capsule of its sporophyte is the _____. In the capsule, long cells with spiral thickenings, the _____, flick the spores out. A moss spore grows first into a branched green thread, the _____.

2 Label the diagram [3]

The diagram shows a young archegonium of *Marchantia*. 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. Who is called the father of bryology? [1]

a. Carolus Linnaeus
b. Johann Hedwig
c. R. H. Whittaker
d. Carl Woese

ii. In which class of bryophytes does the thallus have cavities holding nitrogen-fixing *Nostoc*? [1]

a. Hepaticopsida
b. Anthocerotopsida
c. Bryopsida
d. none of them

iii. In a moss you see a green leafy shoot with a thin brown stalk and a capsule growing from its tip. Which part is diploid? [1]

a. the green leafy shoot
b. the stalk and capsule
c. the rhizoids at the base
d. the whole plant

iv. A bryophyte has a flat thallus, unicellular rhizoids, scales on its lower side, and capsules with no columella. To which class does it belong? [1]

a. Hepaticopsida
b. Anthocerotopsida
c. Bryopsida
d. it could be any of the three

v. Mosses are used to monitor heavy metals in the air because: [1]

a. they have deep roots that reach the groundwater
b. their xylem carries metals to the capsule
c. they take in water and dissolved substances through their whole surface
d. they grow only in clean places

4 Short answers [9]

Write short answers to the following questions.

a. Why are bryophytes called the amphibians of the plant kingdom? [2]

b. Write any two differences between liverworts and mosses. [2]

c. The umbrella-like stalks on a *Marchantia* thallus are not sporophytes. What are they, and how do they help in fertilization? [2]

d. Describe how a gemma of *Marchantia* grows into new plants. Why does a gemma from a male thallus give only male plants? **[3]**

5 Long answer **[8]**

Write a long answer to the following question.

a. Describe the sporophyte of *Marchantia*. Why is it called parasitic on the gametophyte? **[4]**

b. Explain any four ways in which bryophytes are important. **[4]**

6 Think **[3]**

A student says, "*Marchantia* has a stem and leaves like any other plant, so it must be a small vascular plant." Is the student right? Explain.

7 Activity: Splash cups

(not marked)

Find *Marchantia* with gemma cups (at the foot of a damp wall, or ask your teacher). Put a piece of the thallus on wet paper in a dish and drip water into a cup from a dropper held about 50 cm above it. Then sow a few gemmae on damp soil in a covered dish kept in the light, and look at them with a hand lens every few days.

What you did	What you saw
dripped water into a gemma cup	
measured where the gemmae landed	
looked at sown gemmae after a few days	
looked again after a week or two	

Where on a gemma do the first new lobes appear?