Unit 22 · Protista

WORKSHEET

Full marks 36

Name _____ Class _____ Roll no. _____ Date _____ Marks _____ / 36

1 Key words [4]

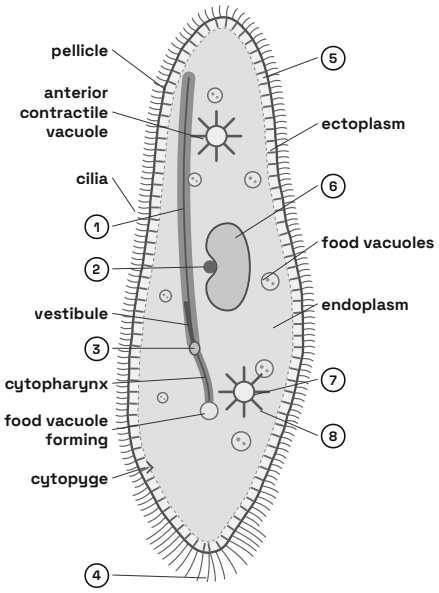
Fill in the blanks with words from the box. Two words in the box are not needed. Each blank carries 0.5 mark.

amphimixis	**cyclosis**	**cytopyge**	**dimorphism**	**flagellum**	**frustule**	**metachronal**
paramylon	**plankton**	**pseudopodia**				

Small organisms that drift in water and can't move against its currents are called _____. The hard glass shell of a diatom is its _____. *Euglena* stores its food as _____. In *Paramecium* the cytoplasm streams in a fixed path and carries the food vacuoles round the cell; this is _____. The cell anus, through which undigested food is thrown out, is the _____. The waves in which the cilia beat one after another are the _____ rhythm. Having two kinds of nucleus, a macronucleus and a micronucleus, is nuclear _____. The complete fusion of two nuclei from different individuals in conjugation is _____.

2 Label the diagram [4]

The diagram shows *Paramecium caudatum*. Write the names of the parts 1 to 8. Each carries 0.5 mark.



1. _____ **2.** _____

3. _____ **4.** _____

5. _____ **6.** _____

7. _____ **8.** _____

3 Multiple choice [5]

Choose the correct option for each of the following questions.

i. Which of the following is a bioluminescent protist? [1]

a. *Physarum* **b.** *Dictyostelium*
c. *Noctiluca* **d.** *Leishmania*

ii. How many radiating canals are found round each contractile vacuole of *Paramecium*? [1]

a. 2–5 **b.** 6–10
c. 11–15 **d.** 6–15

iii. A protozoan has no locomotory organelles, has a pellicle, and lives only as a parasite inside its host. In which class is it? [1]

a. Flagellata **b.** Rhizopoda
c. Sporozoa **d.** Ciliata

iv. In the binary fission of *Paramecium*, how do its two nuclei divide? [1]

a. both by mitosis
b. both by amitosis
c. the micronucleus by mitosis, the macronucleus by amitosis
d. the micronucleus by meiosis, the macronucleus by mitosis

v. Why does the **posterior** contractile vacuole contract more often than the anterior one? [1]

a. It is bigger.
b. It has more radial canals.
c. It is near the cytopharynx, where more water enters with the food.
d. The caudal tuft pumps water into it.

4 Very short answers [3]

Write very short answers to the following questions.

a. Who proposed the kingdom Protista, and in which year? [1]

b. Name the protist that causes kala-azar, and the insect that spreads it. [1]

c. Why is *Euglena*'s nutrition called mixotrophic? [1]

5 Short answers [9]

Write short answers to the following questions.

a. Differentiate between plasmodial and cellular slime molds, with one example of each. **[2]**

b. A *Paramecium* is moved from pond water into sea water. What would you expect to happen to its contractile vacuoles, and why? **[2]**

c. What will happen to a *Paramecium* if its micronucleus is removed? What if its macronucleus is removed instead? **[2]**

d. What are trichocysts? Discuss their working mechanism. **[3]**

6 Long answers [8]

Write long answers to the following questions.

a. *Paramecium* shows nuclear dimorphism: it has two types of nucleus, the macronucleus and the micronucleus. What are the differences between them? [4]

b. Which method of reproduction does *Paramecium* adopt in unfavorable conditions such as a shortage of food or a sudden fall in temperature? Describe it with the necessary diagram. [4]

7 Think [3]

A student keeps one *Paramecium* in a jar with plenty of food. It divides two or three times a day for months, but after a few hundred generations the cells divide more and more slowly. Explain why, what the line needs, and why the offspring of that process differ from those of binary fission.

8 Activity: Fission and conjugation compared (Activity 8.3)

(not marked)

Fill in the table from what you have learned.

	Transverse binary fission	Conjugation
asexual or sexual?		
how many parents?		
in which conditions?		
how the micronucleus divides		
what happens to the macronucleus		
daughters from one cell or pair		

Which of the two brings variation?