Unit 2

Answers: Life and Life Process

Quick checks

1 **b**

2 **c**

3 **b**

4 **c**

5 **c**

1 a. **c** *Spirogyra*

Chlamydomonas *Zygnema* *Cladophora*

1 b. **b**

1 c. **d**

1 d. **c**

1 e. **b**

1 f. **d**

2 a. *Spirogyra*

2 b.

2 c. *Entamoeba histolytica*

2 d.

2 e.

2 f.

3 i.

Scalariform conjugation	Lateral conjugation

3 ii.

Osmosis	Diffusion

3 iii.

Aerobic respiration	Anaerobic respiration

4 a. **Scalariform conjugation:**

1.
2.
3.
4.
5.
6.

Germination of the zygospore:

(Diagrams: two parallel filaments with papillae; joined by tubes like a ladder; gametes moving through the tubes; zygospores in one filament and empty cells in the other; a zygospore with four nuclei, three degenerating; a germ tube growing into a filament.)

4 b. *Entamoeba histolytica*

1. **Infection:**

2. **Excystation:**

3. **Multiplication:**

4. **Invasion:**

5. **Encystment:**

6. **Release:**

(Diagram: a ring showing the four-nucleate cyst, excystation, eight amoebae, trophozoite, binary fission, precystic form, cysts with one, two and four nuclei, back to the swallowed cyst; a branch to the ulcer and liver.)

Prevention:

4 c. Osmosis

Experiment (potato osmometer):

1.
2.
3.
4.
5.

Observation:

Conclusion:

(Diagram: a beaker of water with the hollowed potato standing in it, sugar solution in the cup, a pin marking the first level and the higher later level.)

4 d. Transpiration

Experiment 1 (bell jar):

Experiment 2 (cobalt chloride paper):

(Diagrams: the bell jar over the sealed potted plant with drops; a leaf between slides with paper on both surfaces.)

4 e. **Intracellular respiration**

Aerobic respiration

1. **Glycolysis**
2. **Krebs cycle**
3. **Electron transport chain**

Advantages:

1.
2.
3.
4.
5.

5 a. **−10%**
hypertonic

5 b. **0.25 mol/L**

5 c. **12 mm³ per minute** **20 mm³ per minute**

5 d. **3,240 liters**

124 liters

5 e.

2,318 kJ

4 mol of ATP