A2.2 Cell structure

What the Cell · DP Biology · worksheet · SL statements A2.2.1–11

Name _____ **Date** _____ **Total** _____ / 48

About 50 minutes, or one section at a time. A calculator is allowed. The number of marks shows how many separate points to make.

Section A: Recall

9 marks

1 **List** three structures found in all cells. A2.2.4 **[3]**

2 **State** the size of ribosomes in prokaryotes, and in eukaryotes. A2.2.5, A2.2.6 **[2]**

3 **State** the function of the Golgi apparatus. A2.2.6 **[1]**

4 **State** the main component of cell walls in plants, and in fungi. A2.2.8 **[2]**

5 **State** one cell type with many nuclei. A2.2.9 **[1]**

Section B: Understanding and drawing

17 marks

6 **Explain** why electron microscopes show more detail than light microscopes. A2.2.3 **[2]**

7 **Outline** how immunofluorescence shows the location of one type of protein in a cell. A2.2.3 **[2]**

8 **Draw** a prokaryotic cell as seen in an electron micrograph, and label five structures. A2.2.5 **[5]**

9 **Explain** how Paramecium carries out four functions of life. A2.2.7 **[4]**

10 **Compare and contrast** the structure of a typical plant cell with that of a typical animal cell. A2.2.8 **[4]**

Section C: Working with data

14 marks

All values in this section are invented for practice.

11 A2.2.2

a A sperm tail is 50 µm long, and a student draws it 75 mm long. **Calculate** the magnification. **[2]**

b A micrograph at ×400 shows a cell 28 mm wide. **Calculate** its actual width in µm. **[2]**

c A scale bar labelled 10 µm measures 25 mm. **Calculate** the magnification. **[2]**

d On the same image, a mitochondrion is 6 mm long. **Calculate** its actual length. **[2]**

e The graticule in an eyepiece has 100 divisions. It lines up with 1 mm on a stage micrometer. A cell spans 30 divisions. **Calculate** the width of the cell. **[2]**

12 A2.2.10

An unknown cell in an electron micrograph is 2 µm long. No membrane surrounds its DNA, and it has no mitochondria. It has a thick outer layer.

a **Deduce** the type of cell, giving two reasons. **[2]**

b **Name** the region in which its DNA is found, and the type of its ribosomes. **[2]**

Section D: Longer answer

8 marks

13 **Compare and contrast** prokaryotic and eukaryotic cells. A2.2.4–6 **[8]**

What the Cell. Original questions written for this course.