TSSM™
Creating VCE Success

# Exam Practice Guide

## Unit 1
## Biology
## Examination 1



### Key Features:

- ✓ 168 original examination style questions on all examinable topics.
- ✓ Full solutions and a marking guide to all questions.
- ✓ Separated into key topic areas within each Area of Study, enabling students to master one topic at a time.
- ✓ Written by VCE assessors who mark the real examinations.
- ✓ Excellent resource for examination practice.

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***Helping VCE students be the best they can be.***

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**Unit 1 – How do living things stay alive?**

**UNIT 1: HOW DO LIVING THINGS STAY ALIVE?**

**AREA OF STUDY 1: How do organisms function?**

**Topic 1 – Cell size, structure and function**

**Question 1**

The cell is the smallest living organisational unit capable of independent life. There are many different types of cells that differ in size, shape and function. The similarities and differences between different cell types are used to classify them into smaller groups. Two such groups are prokaryotic cells and eukaryotic cells.

One feature that can be used to determine whether cells are prokaryotic or eukaryotic would be:

**A.** Whether the cell secretes enzymes or not
**B.** Whether the cell contains DNA or not
**C.** Whether the cell contains organic compounds or not
**D.** Whether the cell has membrane bound organelles or not

**Question 2**

Four unknown organelles have been removed from a cell and a chemical analysis was performed upon them. The results of the analysis are shown in the table below. An "x" indicates the presence of a compound in the organelle.

| Substance | Organelle 1 | Organelle 2 | Organelle 3 | Organelle 4 |
|---|---|---|---|---|
| Protein | X | X | X | X |
| Phospholipid | X | X | X | |
| Nucleic Acid | | X | X | X |
| Chlorophyll | | | X | |
| Starch | X | | X | |

Use the information above to answer the following questions:

**a.** Identify which organelle is most likely to be the site of photosynthesis and provide evidence to justify your answer.

2 marks

**b.** Only one of the organelles referred to in the table is found in both prokaryotic and eukaryotic cells. Identify the number of this organelle and provide evidence to justify your answer.

2 marks

**Question 3**

The root tip of a plant was sectioned, stained appropriately and viewed under a light microscope. Which of the following is the observer unlikely to see?

- **A.** Several cells displaying stages of mitosis
- **B.** Thin, cellular extensions around the edge of the root tip
- **C.** Chloroplasts in most of the cells
- **D.** A cell wall surrounding all of the cells

**Question 4**

Which of the following best explains the importance of cells remaining small in size? As a cell increases in size:

- **A.** Surface area and volume both decrease at the same rate
- **B.** Surface area and volume increase at the same rate
- **C.** Surface area increases at a faster rate than volume does
- **D.** Volume increases at a faster rate than surface area does

**Question 5**

All living organisms are classified into a number of taxonomic Kingdoms. In addition to this, there are two divisions to which all organisms also belong: prokaryotes and eukaryotes. This division is due to structural differences between the different types of cells.
Identify one piece of information that is used to distinguish between prokaryotic and eukaryotic cells. Provide an example of each type of cell.

2 marks