

Year 11 Biology HSC

Sample Questions

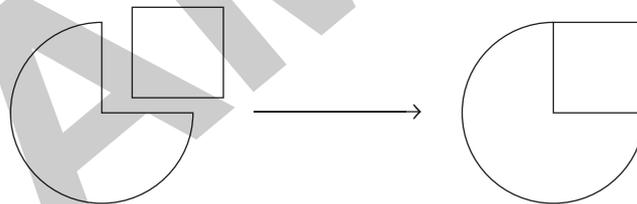
This is NOT a complete sample examination paper.

This document shows the layout of the 2019 Year 11 Biology HSC Diagnostic Topic Tests and provides some sample questions from the tests.

TEST 2 SAMPLE QUESTIONS

Question 1

The following diagram is a representation of an enzyme and a substrate binding together.



What is the term used to describe the mechanism shown in the diagram above?

- A. induced fit model
- B. lock and key mechanism
- C. enzyme-substrate complex
- D. bonding

Question 2

Osmosis and diffusion are used for the transport of substances.

When are endocytosis and exocytosis used in transport?

- A. Endocytosis and exocytosis are used in transport when the molecules are too large to move through the cell membrane.
- B. Endocytosis and exocytosis are used in transport when there is no energy available for the cell.
- C. Endocytosis and exocytosis are used in transport when the cell has no vesicles.
- D. Endocytosis and exocytosis are used in transport when they are active cell processes.

Question 3 (3 marks)

Cellular respiration is an important process for the survival of organisms. This process requires materials to be transported within the cell in order for the reaction to occur, which also produces waste.

Explain why it is important for cells to remove waste produced by biochemical processes.

TEST 4 SAMPLE QUESTIONS

Question 1

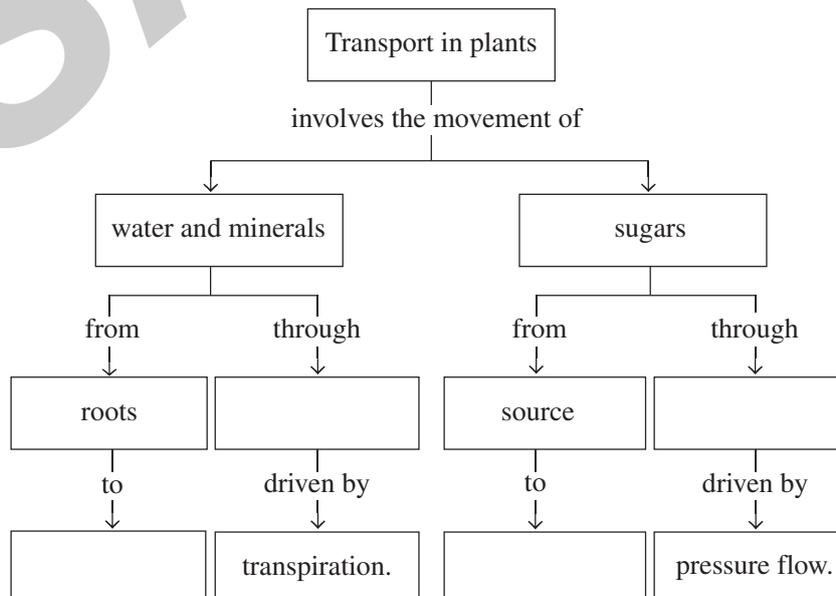
Why do arteries in the human circulatory system have thick, strong walls?

- A. Arteries are attached directly to the heart.
- B. Arteries convey high volumes of blood back to the heart at low velocity.
- C. Arteries accommodate the rapid flow and high pressure of blood pumped by the heart.
- D. Arteries contain one-way valves to prevent blood flowing in the wrong direction.

Question 2 (4 marks)

The flow chart below shows a series of sentences describing transport in plants.

Complete the flow chart by writing the correct terms in the blank boxes below.



TEST 6 SAMPLE QUESTIONS

Question 1

Different animal groups – including fish, dolphins, penguins and squid – have evolved similar streamlined body shapes for efficient movement through water.

Which one of the following terms accurately describes this phenomenon?

- A. adaptive radiation
- B. convergent evolution
- C. divergent evolution
- D. comparative anatomy

Question 2

Which of the following types of evidence support the theory of evolution by natural selection?

- A. stratigraphic sequencing and comparative anatomy
- B. comparative geology and the fossil record
- C. molecular anatomy and vestigial structures
- D. comparative anatomy and the fossil record

Question 3 (5 marks)

The human cardiovascular system has evolved to function with a large, powerful heart and two vascular circuits.

- a. Identify the total number of chambers within the human heart. 1 mark

- b. Describe how the human cardiovascular system circulates blood in the body. 4 marks

TEST 8 SAMPLE QUESTIONS

Refer to the following information to answer Questions 1 and 2.

A Biology teacher has provided the following notes for their students:

Many endemic Australian plants, which have adapted to Australia's dry climate, have been removed and replaced with introduced species for farming. When the land is cleared, the soil becomes susceptible to erosion, as the endemic plants held the soil in place. The introduced species have shallow roots, whereas the endemic species have deep roots. The roots of endemic plants absorb mineral-rich groundwater deep in the soil. When the plants with shallow roots are present, groundwater rises to the surface. The water evaporates, leaving the minerals at the surface. This results in salination of the soil, making it difficult for any plants to grow.

Question 1

Which one of the following is the best heading for the notes shown above?

- A. Human Impact in Australia
- B. Impact of Mining on Soils in Australia
- C. The Impact of Agriculture on Australian Soils
- D. The Impact of Humans on Australian Endemic Plants

Question 2

Which one of the following statements would be the best strategy for restoring the natural habitat described in the notes shown above?

- A. Introduce a native species that will eat the introduced plants.
- B. Remove all introduced plants.
- C. Cover the land in topsoil to provide a nutrient-rich environment for native plants.
- D. Plant native plants with deep roots to keep minerals deep in the soil.

Question 3 (6 marks)

Mining is an important industry in Australia but it can have devastating impacts on ecosystems.

- a. Identify ONE change to an environment that may be caused by mining. 1 mark

- b. Describe the impact of the change identified above on the ecosystem. 2 marks

END OF SAMPLE QUESTIONS