

2001 HIGHER SCHOOL CERTIFICATE EXAMINATION

Biology

Section I – Part B (continued)

Marks

Question 19 (6 marks)

In your Biology course, you performed a first-hand investigation to gather information about structures in plants that assist in the conservation of water.

(a) Describe the procedure you followed.

4

..... Procedure involved investigation in vegetated areas.....
..... taking samples of plants to analyse their structures to
..... assist in water conservation. This involve viewing plants
..... for example, it can be observed by looking at a Eucalypt that
..... their leaves hang vertically so as less surface area is
..... exposed to the sun. It also involved view leaf structures
..... at microscopic level to analyse cell structure. Viewing the
..... structure and arrangement of such things as sunken stomata
..... or tiny hair ~~follicles~~ on the leaves to determine function
..... for water conservation.

(b) Identify TWO safe work practices needed during this investigation.

2

..... Use of gloves when touching plants that may
..... sting or have poisonous barbs. Gathering information about
..... plants before going out to take any samples.
.....

Marks

Question 20 (7 marks)

Name ONE example of an Australian endothermic animal and ONE example of an Australian ectothermic animal, and summarise their responses to the following environmental changes. Give your answer in the form of a table. 7

Change 1: The ambient temperature rises well above the average daily temperature range.

Change 2: The ambient temperature drops well below the average daily temperature range.

Endothermic animal: Red Kangaroo

Ectothermic animal: Blue Tongue Lizard

Condition	Endotherm	Ectotherm
Temp. increase	In hot weather the kangaroo licks its forearms. The evaporation of the water cools the blood. Seeks cool, shady areas.	During the heat of the day it crawls under rocks to keep out of the sun and becomes active at night.
Temp. decrease	Fur provides air gets trapped and provides an insulating layer, warming the kangaroo.	Alternates its position to expose a greater surface area to the sun and absorb heat.

Question 21 (4 marks)

Sutton, Boveri and Morgan worked in the field of genetics. 4

Describe the contribution made by TWO of these scientists to the understanding of the chromosomal nature of inheritance.

Morgan - by breeding fruit flies, Morgan discovered some ^{characteristics} genes are sex-linked and are more common in males than females for example in the fruit fly, white eyes over red eyes.

Sutton - showed genes were ~~not~~ carried on chromosomes.