

VCE Biology Unit 2

Written Examination

Suggested Solutions

SECTION A: MULTIPLE-CHOICE QUESTIONS

1	<input type="checkbox"/> A	<input type="checkbox"/> B	<input checked="" type="checkbox"/> C	<input type="checkbox"/> D
2	<input type="checkbox"/> A	<input type="checkbox"/> B	<input checked="" type="checkbox"/> C	<input type="checkbox"/> D
3	<input type="checkbox"/> A	<input type="checkbox"/> B	<input type="checkbox"/> C	<input checked="" type="checkbox"/> D
4	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B	<input type="checkbox"/> C	<input type="checkbox"/> D
5	<input type="checkbox"/> A	<input type="checkbox"/> B	<input type="checkbox"/> C	<input checked="" type="checkbox"/> D
6	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B	<input type="checkbox"/> C	<input type="checkbox"/> D
7	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B	<input type="checkbox"/> C	<input type="checkbox"/> D
8	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B	<input type="checkbox"/> C	<input type="checkbox"/> D
9	<input type="checkbox"/> A	<input type="checkbox"/> B	<input type="checkbox"/> C	<input checked="" type="checkbox"/> D
10	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	<input type="checkbox"/> C	<input type="checkbox"/> D
11	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B	<input type="checkbox"/> C	<input type="checkbox"/> D
12	<input type="checkbox"/> A	<input type="checkbox"/> B	<input checked="" type="checkbox"/> C	<input type="checkbox"/> D
13	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	<input type="checkbox"/> C	<input type="checkbox"/> D

14	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B	<input type="checkbox"/> C	<input type="checkbox"/> D
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17	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	<input type="checkbox"/> C	<input type="checkbox"/> D
18	<input type="checkbox"/> A	<input type="checkbox"/> B	<input checked="" type="checkbox"/> C	<input type="checkbox"/> D
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21	<input type="checkbox"/> A	<input type="checkbox"/> B	<input type="checkbox"/> C	<input checked="" type="checkbox"/> D
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25	<input type="checkbox"/> A	<input type="checkbox"/> B	<input type="checkbox"/> C	<input checked="" type="checkbox"/> D

Question 1 C

These scents attract males to maximise reproduction at the correct time.

Question 2 C

Pheromones are chemical substances produced by an animal species, which convey information to other members of the same species.

Question 3 D

In the 2-hour period, the reptile has been able to maintain a relatively stable temperature by behavioural means such as moving in and out of the sun or seeking a cooler place. Reptiles are not homeothermic and do not have structural or physiological adaptations to regulate their body temperature.

Question 4 B

At low temperatures this organism is able to generate some body heat and raise its body temperature above that of the environment. Birds are homeothermic and would be able to maintain a relatively stable body temperature over this temperature range. As this organism's body temperature rises with the external temperature above 20°C it has no mechanisms to lower its body temperature.

Question 5 D

As organism II's body temperature is above its environment it is able to produce more heat than it loses. Organism I's body temperature mimics the external temperature. Behavioural adaptations do not generate heat within an organism.

Question 6 B

Ethylene is responsible for fruit ripening, gibberellins are responsible for general elongation of the shoot system and cytokinins are responsible for increased cell division.

Question 7 B

Substance X from the agar block in 2 and the apical bud in 4 will inhibit lateral bud growth.

Question 8 B

This is instinctive and not learnt of which imprinting is rapid learning at an early age. Habituation is the loss of an innate response to conserve energy.

Question 9 D

Responding to the noise is an innate response. The lessening/loss of the response is habituation. Instinct is innate. Conditioning is the responding to an unrelated stimulus due to association.

Question 10 A

Learnt behaviour is not innate or instinctive. It is developed from specific experiences not any environmental factor.

Question 11 B

The levels of oestrogen and progesterone are low when contractions begin. Prolactin levels rise and do not appear to affect labour.

Question 12 C

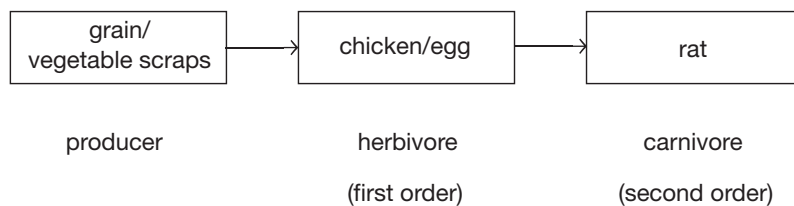
The level of these hormones steadily rise throughout pregnancy so both are required. Oxytocin rises around birth.

Question 13 A

There are no producers, this food web is detritus based.

Question 14 B

As these organisms feed on organic matter (detritus) made up of decomposed plant, animal and waste matter.

Question 15 B**Question 16 B**

Biotic factors are the living components (communities) and the abiotic factors make up the non-living components. The niche is the role of an organism in its environment and the habitat is where an organism lives.

Question 17 A

Both the algae and fungi depend on each other therefore they both benefit.

Question 18 C

The mistletoe, being a parasite gains benefit from the eucalyptus tree, which in turn is harmed.

Question 19 C

The dingo gains food (a benefit) and the bandicoot dies (extreme harm).

Question 20 C

All organisms release this gas during cellular respiration and plants take it up for photosynthesis.

Question 21 D

Z consumes herbivores so it is a carnivore and all organisms eventually end at Y decomposers.

Question 22 B

I, II and III all pass organic and inorganic material and energy to the next trophic level. IV only passes on inorganic material.

Question 23 D

Herbicides are organic chemicals which are not eaten therefore detritivores are not involved. They are broken down by fungi and bacteria.

Question 24 C

Dieldrin accumulates through biomagnification and the organism with the highest level is the snapper.

Question 25 D

As mercury does not break down it would accumulate in the detritus, the remains of the organisms.

SECTION B: SHORT-ANSWER QUESTIONS**Question 1 (7 marks)**

- a. 1. stimulus 1 mark
2. effector 1 mark
- b. • inter/intermediate neuron 1 mark
• *Any one of:*
• found in the CNS
• unmyelinated
• connects sensory to motor neurons 1 mark
- c. *Any one of the following:*
• blinking
• dropping hot objects
• knee jerk
Or any other suitable answer. 1 mark
- d. *Any two of the following:*
The reflex arc
• does not go to the brain.
• is not homeostatic.
• has a response that does not alter the stimulus.
Or any other suitable answer. The converse for negative feedback is also suitable, or a combination thereof. 2 marks

Question 2 (6 marks)

- a. i. A feature of an organism 1 mark
which helps it to survive and reproduce in a particular environment. 1 mark
ii. These modified leaves reduce water loss 1 mark
as there are less stomata. 1 mark
Or any other suitable or reasoned answer.
- b. *Any two of the following:*
• lower levels of light
• more water
• lower temperature
Or any other suitable answer. 2 marks

Question 3 (7 marks)

- a. i. The maintenance of a relatively stable internal environment. 1 mark
ii. negative feedback 1 mark
- b. i. the nervous system 1 mark
ii. *Any one of the following:*
• faster
• uses electricity
• uses neurotransmitters
Or any other suitable answer. 1 mark
- c. *One from each of the following categories:*
• physiological
• sweating
• increased blood flow to the skin 1 mark
• behavioural
• remove clothes
• seek cool place 1 mark

Note: decreased metabolism is not acceptable as a physiological adaptation, as it is not a cooling mechanism.

Question 4 (7 marks)

- a. through the bloodstream 1 mark
- b. there would be reduced/no production 1 mark
- c. i. it would decrease it 1 mark
ii. that a lack of iodine caused the goitre 1 mark
iii. Take two groups of people unaffected by goitre with similar health, etc. 1 mark
One group should be given sufficient iodine and the other not. 1 mark
iv. *One of the following:*
• a cheap food
• readily available
• widely eaten 1 mark

Question 5 (9 marks)

- a. 10 million per km² 1 mark
- b. i. *Any one of the following:*
- Rats could have been on boats 1 mark
and come ashore when ships landed. 1 mark
 - Rats could have been carried on drift material 1 mark
from neighbouring islands. 1 mark
- Or any other suitable answer.*
- ii. *Any two of the following:*
- abundant food
 - lack of competition
 - lack of predators
- Or any other suitable answer.* 2 marks
- c. i. *Any one of the following:*
- Rats could eat seeds.
 - Rats could use plants as nesting material. 1 mark
- ii. *Any one of the following:*
- Rats could eat eggs of birds.
 - Rats could eat young of other animals.
 - Rats could spread disease amongst animals. 1 mark
- d. *Any two of the following:*
- kill native fauna
 - kill fauna for food
 - kill any rat predators
- Or any other suitable answer.* 2 marks

Question 6 (7 marks)

- a.** The bark protects the (epicormic) buds 1 mark
which sprout and replace the canopy. 1 mark

b. *Any two of the following:*

- triggers seed germination
- clears undergrowth
- returns nutrients trapped in debris

Or any other suitable answer.

2 marks

c. *Any one of the following:*

- move animals into the open
- encourage new growth to attract animals
- clear areas for easier hunting

Or any other suitable answer.

1 mark

d. *Any two of the following:*

- deforestation
- cellular respiration
- burning of fossil fuels
- decomposition
- volcanos

Or any other suitable answer.

2 marks

Question 7 (7 marks)

a. i. A niche is the role of an organism in its environment. 1 mark

ii. Any two of the following:

- feed on blood
- parasitic
- live in hair

Or any other suitable answer.

2 marks

b. Any one of the following:

structure	function
strong legs	jump to new host
compressed body	move through hairs
hooks on legs	hold on to host
hairs face backwards	prevent being scratched off
sharp mouth parts	puncture host's blood supply

Or any other suitable answer.

2 marks

c. Any two of the following:

- cooler temperature for head lice
- pubic lice require shelter from clothes
- pubic lice prefer coarser hair
- pubic lice prefer a more moist environment

Or any other suitable answer.

2 marks