

Year 11 Biology Semester 2 Exam (Answers)
Multiple Choice Section

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Short Answer Section

Question 1.

- Territorial Behaviour (1).
- Any two of the following (2).
 - Helps establish a territory that is necessary for breeding/nesting sites.
 - Helps establish a territory that is necessary for obtaining food.
 - Helps establish a territory that provides a safe area for juveniles.
 - Reduces likelihood of physical harm between individuals of different groups.
 - Any other reasonable suggestion.
- The scientists were trying to teach the quolls to avoid eating cane toads (1).
- The desired behaviour is learned (1) as it relies on previous experience (1).
- The quolls in the experimental group were more likely to survive as they would be expected to avoid eating cane toads (1) based upon their previous encounter of eating a small toad that was covered with a nausea-inducing chemical (1).
- The behaviour would not be passed down to the offspring (1) as it is based on experience, rather than being present in the genes (1).

Question 2.

- Lepus americanus* would be found in a cold and snow covered environment (1).
 Evidence to support this include (2 x ½)
 - Small surface area to volume ratio to reduce heat loss
 - Thick fur to provide insulation

- White coloured fur to provide camouflage
- b. Any two of the following (2).
 - Large ears
 - Fur Colour
 - Eyes at side of head
 - Long legs
 - Long thin body
- c. Example (1).
 - Large ears to help the body rid itself of excess heat.
 - Fur colour that provides camouflage from predators.
 - Eyes at the side of the head to give a wide field of view which helps to see predators.
 - Long legs enable it to run fast and escape from predators OR long legs to raise the body off the ground to reduce the uptake of heat.
 - Long thin body has a high surface area to volume ratio to increase heat loss.

Question 3.

- a. The data suggests that methyl mercury undergoes biological magnification along the food chain (1).
- b. *E. simplicicollis* → *L. macrochirus* → *P. annularis* → *M. salmoides* (1).
- c. Methyl mercury is non biodegradable so it remains in the food chain (1). The amount of biomass becomes less along a food chain, causing those organisms at the top of the food chain to accumulate the highest concentration of methyl mercury (1).

Question 4.

- a. *Tyto longimembris* (1).
- b. i. Eight species (1).
 - ii. Two genera (1).
 - iii. Any two of the following (2).
 - Shape of face
 - Presence/Absence of comb-like structure
 - Eye Colour
- c. *Tyto* and *Ninox* belong to separate families (1) since the information states that there are two families which imply that the two genera must belong to separate families (1).
- d.

| <i>Species</i> | Eye Colour | Shape of Face |
|-------------------------|-------------------|----------------------|
| <i>Tyto tenebricosa</i> | Dark Brown (½) | Heart Shaped (½) |
| <i>Ninox rufa</i> | X (½) | Hawk Like (½) |

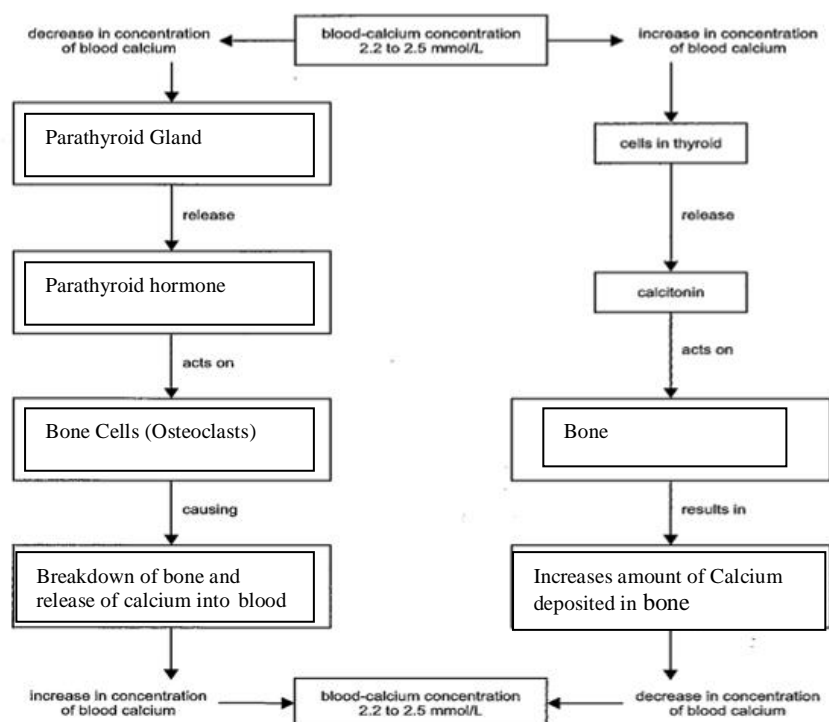
- e. Tree felling, such as in old growth forests, where old trees with nest hollows are removed (1).

Question 5.

- a. The student's hypothesis is supported (1) as only bulbs that were chilled to temperatures of 4 °C or below produced flowers in the following spring (1).
- b. A chilling temperature of 0 °C is not the best temperature since more flowers were produced at chilling temperatures of 2 °C and 4 °C (1).
- c. Temperature (1).

Question 6

a. (6 x ½)



b. Receptors (1).

c. Homeostasis (1).

Question 7.

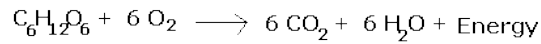
a.

| Hormone | Effect | Organ or Plant Part that secretes hormone |
|--|---|---|
| <i>Oestrogen (example)</i> | <i>Stimulates sexual development in females (example)</i> | <i>Ovary (example)</i> |
| Ethylene | Fruit ripening, senescence (½) | Fruit |
| Cytokinin | Cell Division (½) | |
| Absciscic Acid (½) | Promotes dormancy in plants | |
| Testosterone OR Human Growth Hormone (½) | Promotes muscle development | Testes OR Pituitary Gland (½) |
| Adrenalin | Constricts Blood Vessels OR Prepares Body For Fight/Flight (½) | Adrenal Glands (½) |
| Auxin (½) | Cell elongation OR Cell Growth OR Apical Dominance OR Tropism (½) | The tip of a growing shoot (½) |

Question 8.

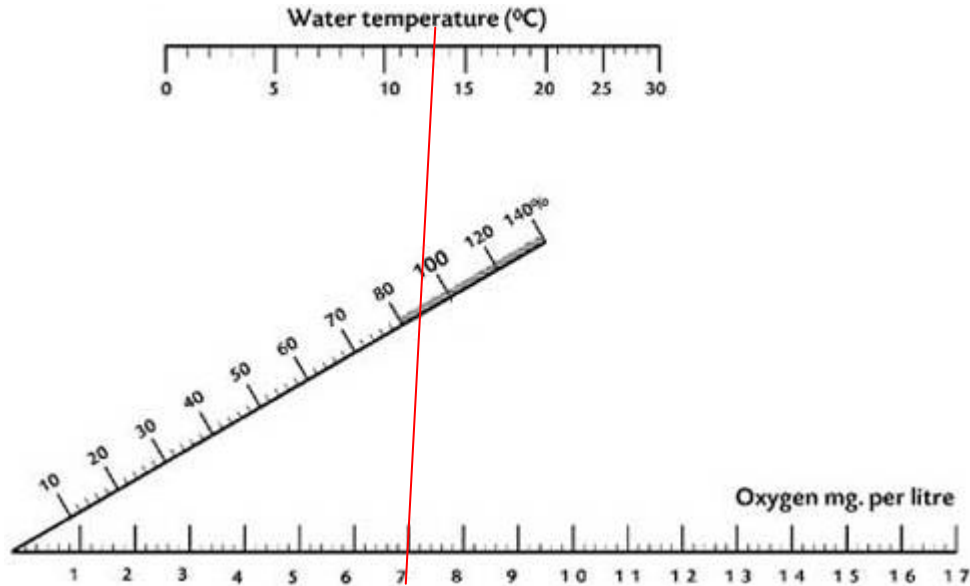
- a. Crayfish require oxygen as a raw material for respiration (1).

Cellular Respiration



(1).

- b. The oxygen levels are sufficient for crayfish to survive as the oxygen saturation level is nearly 90% (which is above the 75% given in the information) (1).
Correct line drawn on diagram (1).



- c. Any of the following.

Fertilizer from farmland washed into the water (1) causing algae/bacteria to breed prolifically and deprive the water of oxygen (1).

OR

Sewage from households washed into the water (1) causing algae/bacteria to breed prolifically and deprive the water of oxygen (1).