

Year 11 Biology Semester Two, 2009 (Answers)

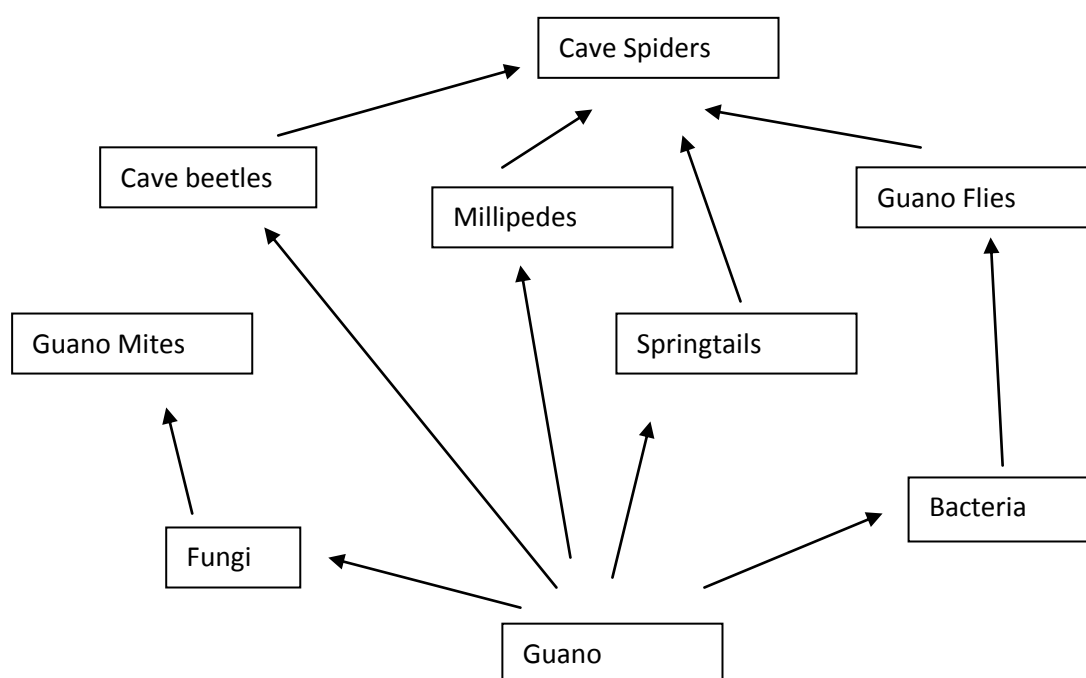
Multiple Choice Section

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
B	C	D	D	D	A	A	B	C	C	D	B	B	B	B	D	A	B	B	B
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
C	D	A	B	D	B	C	B	C	C	A	B	C	C	B	D	D	B	B	B

Short Answer Section

Question 1

- a. There should be 11 arrows as shown below. Maximum of 3 marks. Half mark deducted for each error (3).



- b. Producers or plants (1).
 c. Guano (1).
 d. The cave community would eventually disappear (1) as bats would not be able to access the cave and provide guano to the cave community (1).

Question 2.

- a. Competition (1).
 b. Any two of the following (2).
 • As food supply is increased, the growth rate of the tadpoles is increased.
 • Tadpoles grow faster by themselves compared to tadpoles that share the tank with mosquito larvae.
 • Any other reasonable suggestion.
 c. The tanks that only contained tadpoles acted as controls in the experiment (1).
 d. To replicate the experiment, the biologists would have repeated the experiment many times OR set up multiple numbers of each type of tank (1)

- e. Frogs feed on mosquitoes ($\frac{1}{2}$). If there is a decline in frog populations, then mosquito populations may increase ($\frac{1}{2}$). As a consequence, mosquito transmitted diseases in humans, would also be expected to increase (1).

Question 3.

- a. Sweat is released from glands onto the skin ($\frac{1}{2}$). When the water from the sweat evaporates ($\frac{1}{2}$), it takes away body heat which helps cool the animal (1).
- b. By lowering its body temperature, the metabolic rate of the echidna is reduced ($\frac{1}{2}$). As a consequence, it requires less food to survive over the winter ($\frac{1}{2}$).

Question 4.

- a. Functional Adaptation: Ability to remove excess salt using glands above its eyes (1).
Survival Value: Helps maintain proper solute concentrations in tissues (1).
Structural Adaptation: Broad “frogmouth” bill (1).
Survival Value: Enables the broad-billed prion to effectively catch crustaceans (1).
OR
Structural Adaptation: Lamellae inside the bill
Survival Value: used to filter the crustaceans from the water.
Behavioural Adaptation: Building a nest at the end of a burrow (1).
Survival Value: Provides greater protection from predators/elements to the developing young (1).
OR
Behavioural Adaptation: Feeding at night
Survival Value: More crustaceans in the surface waters at night.
- b. Any one of the following (1):
- Trampling of sand dunes by people that destroy nesting burrows.
 - Clearing of vegetation where nesting burrows occur leading to erosion.
 - Oil slicks killing birds
 - Birds becoming tangled and drowning in fishing nets.
 - Any other reasonable suggestion.

Question 5.

- a. A tropism is a growth response by a plant due to a stimulus (1).
- b. Batch 2 (1).
- c. A control is necessary as it shows that any difference in the response by the maize seedlings in Batch 1 is due to the different temperatures they are exposed to and not some other factor (1).
- d. Any one of the following (1).
- Maize seedlings show positive thermotropism.
 - The thermotropism response is greater in seedlings that grow in cooler agar.
 - Any other reasonable suggestion.
- e. The degree of bending shown by the maize seedlings (1).
- f. Other controls would have included batches of maize seedlings at 10, 15, 20 and 30 degrees Celsius (1).
- g. Auxin OR IAA (1).

Question 6.

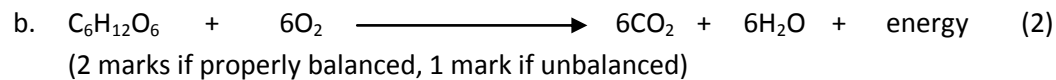
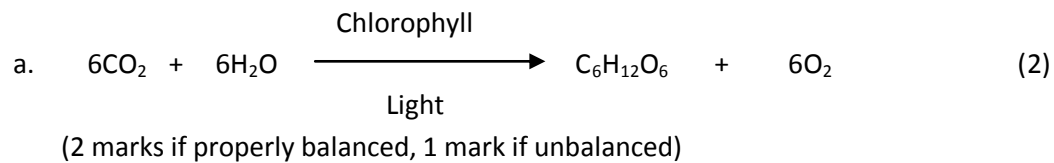
- a. Learned behaviours are those that have been modified by previous experience (1). Innate behaviours are those that can be performed without prior experience (1).

- b. i. Habituation (1).
- ii. Imprinting (1)
- iii. Trial and error learning (1).
- iv. Conditioning OR associative learning (1).
- c. Innate (1).
- d. This helps ensure that the blackbird gets sufficient nutrients from its parents (1).
- e. Learned (1).
- f. This behaviour increases the chance of it being fed by its parents (1).

Question 7.

- a. Communication is the transfer of information from one individual to another (1).
- b. i. Tactile Communication: Kiss on the muzzle (1).
- ii. The use of a Pheromone: The secretion of odours from the genital region (1).
- iii. Visual Communication: Erect tail and bristling mane (1).

Question 8.



- c. Any animal, fungus or non-photosynthetic bacteria (1).