**1.** This question is about the food web below.



[Source: http://cbc.amnh.org/crisis/foodweb.html. Center for Biodiversity and Conservation, American Museum of Natural History]

What will happen to the sizes of the populations in the food web above if the sea otter disappears?

A. Large fish increase and sea urchins decrease.

B. Abalones increase and sharks increase.

C. Sea urchins increase and kelps decrease.

D. Sea stars decrease and sharks increase.

(Total 1 mark)

**2.** The food web below shows some of the feeding relationships found between the organisms living in or near a river in England.



(a) Identify an organism in the food web that is

(i) an autotroph.

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(1)

(ii) both a secondary and tertiary consumer.

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(1)

(b) Explain how the flow of energy in the food web differs from the movement of nutrients.

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(2)

(c) Discuss reasons why the levels of a pyramid of energy differ in size.

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(2)

(Total 6 marks)

**3.** (a) Define *biomass*.

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(1)

(b) Describe how biomass may be measured.

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(2)

(c) Explain the biomass change in different trophic levels.

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(3)

(Total 6 marks)

**4.** Why do food chains in an ecosystem rarely contain more than five organisms?

A. Nutrients are recycled by the decomposers back to the producers.

B. Nutrients are lost from the ecosystem when organisms die.

C. The conversion of food into growth by an organism is not very efficient.

D. Energy is recycled by the decomposers back to the producers.

(Total 1 mark)

**5.** This question is about the food web below



What is the energy transfer level from the kangaroo rat to the weasel shown in the food web above?

A. Three times greater than the energy transfer from the roadrunner to the bobcat

B. Half the energy transfer from chaparral plants to the meadow mouse

C. A quarter of the energy transfer from the quail to the bobcat

D. Approximately the same as the energy transfer from the meadow mouse to the opossum

(Total 1 mark)

**6.** What are the units of a pyramid of energy?

A. kJ m–2 yr–1

B. kJ m–1 yr–1

C. J m–3 s–1

D. J m2 s–1

(Total 1 mark)