IB · SL · Biology

22 mins 4 questions

Structured Questions

Populations & Communities

Populations in Ecosystems / Estimating Population Size / Limiting Population Size / Limiting Population Size: Examples / Population Growth Curves: Skills / Populations: Intraspecific Relationships / Community: Interspecific Relationships / Interspecific Competition / Chi-Squared Test: Skills

Easy (2 questions)	/10
Medium (2 questions)	/12
Total Marks	**/22**

Scan here to return to the course
or visit savemyexams.com

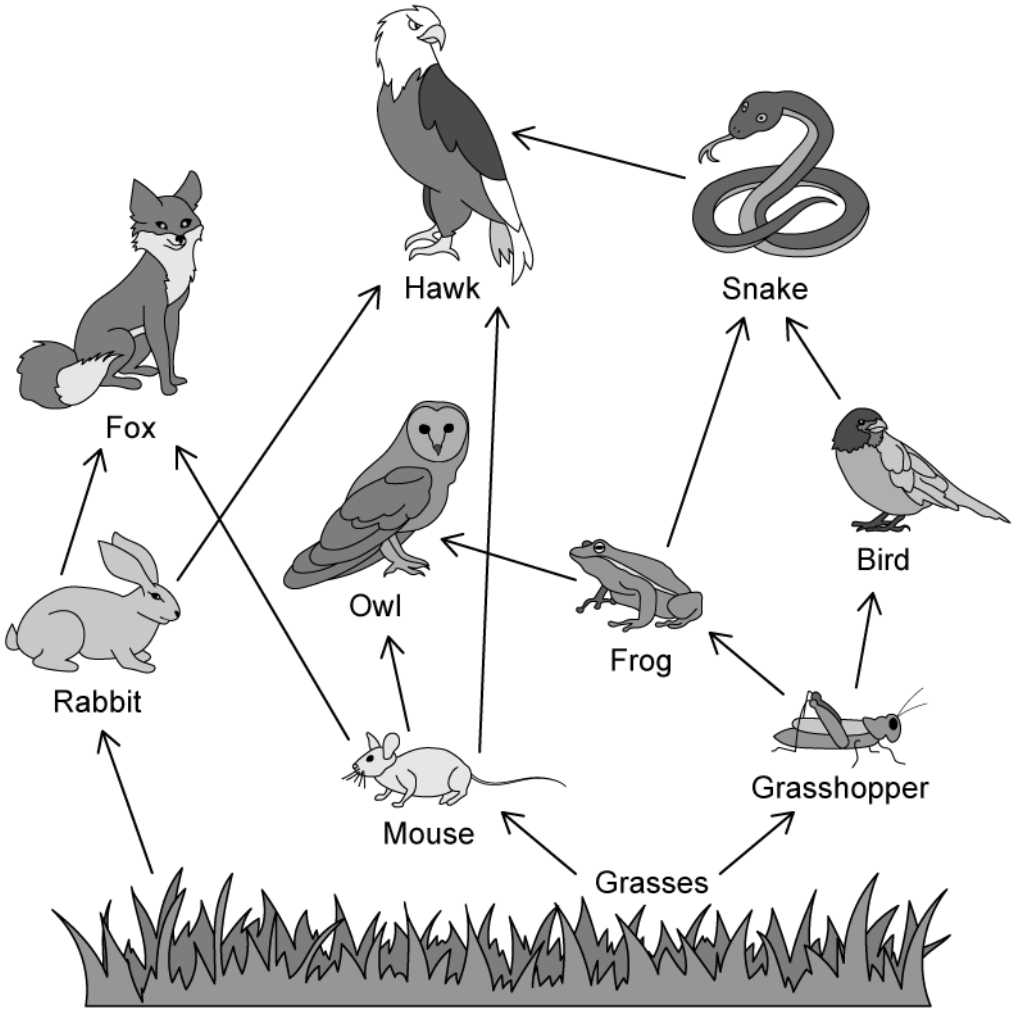
Easy Questions

1 (a) Give the definition of a species.

.....

(1 mark)

(b) The image shows a woodland food web.



What word is used to collectively describe all the interbreeding foxes in the woodland represented by this food web?

.....

(1 mark)

(c) Identify all the primary consumers from the forest food web.

.....

(1 mark)

2 (a) Describe how a quadrat could be used to study the distribution of a particular species of clover plant in a meadow compared to a forest.

(5 marks)

(b) In a quadrat study, clover was found in 5 quadrats.

The numbers of squares containing clover in those 5 quadrats were 12, 39, 35, 85 and 27 respectively.

Each quadrat measured 50 cm × 50 cm and was divided into 100 squares.

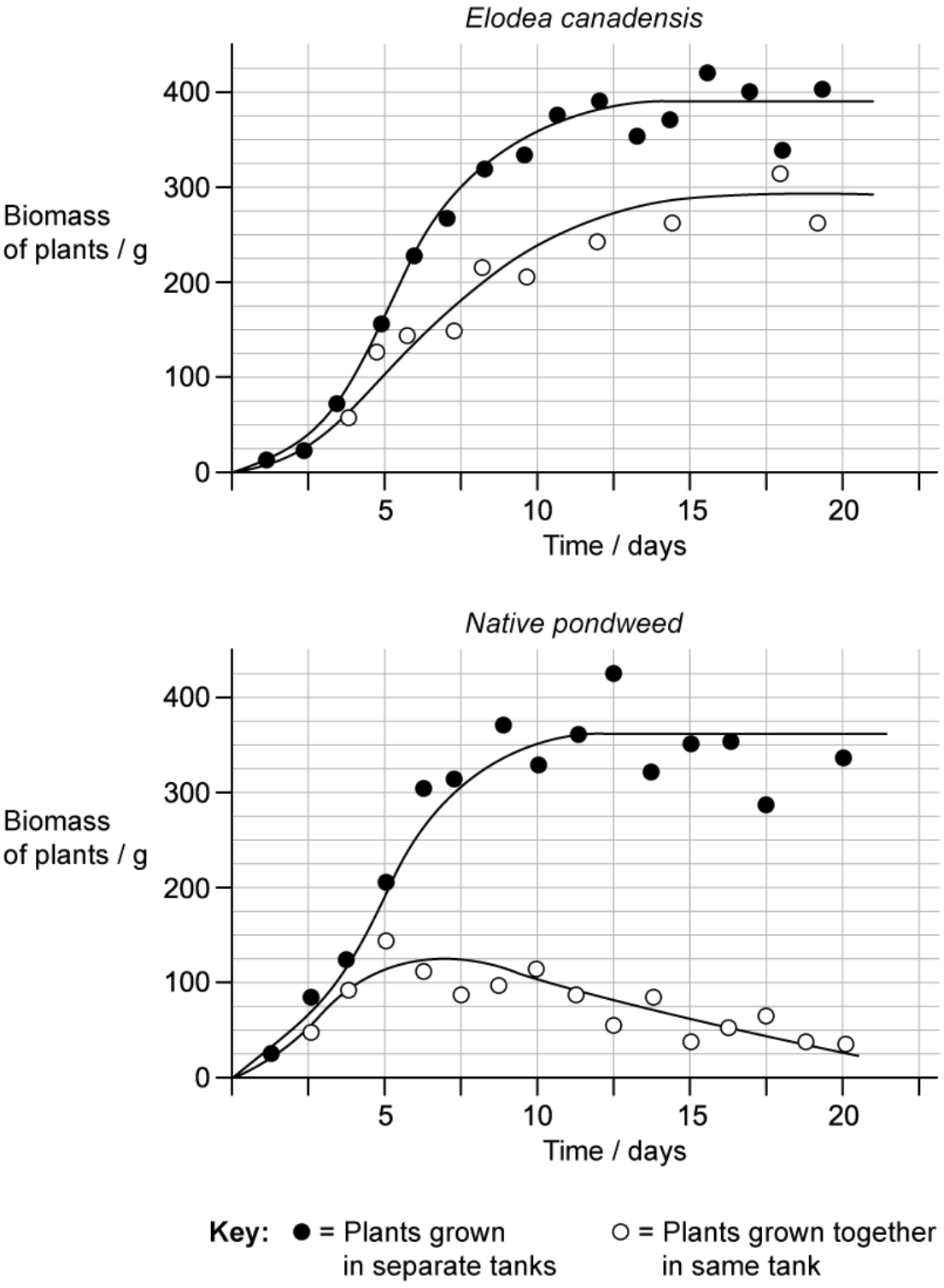
Calculate the overall percentage cover of clover in the 5 quadrats.

State your answer to the nearest whole number.

(2 marks)

Medium Questions

1 (a) *Elodea canadensis* (Canadian pondweed) is a species of aquatic plant from North America. A student grew *Elodea canadensis*, along with a pondweed species native to the UK, in water tanks both separately and together. The graphs below show their results.



State **two** abiotic factors the student should have controlled throughout the experiment.

(2 marks)

(b) Calculate the difference in biomass between native pondweed grown separately and native pondweed grown in a tank together with *E. canadensis* after 15 days.

.....

(1 mark)

(c) Explain the results for native pondweed for when both species of pondweed are grown together.

.....

.....

(2 marks)

2 (a) Ecologists studied a rocky shore habitat which contained, among other organisms, several barnacle species, purple topshell snails (*Gibbula umbilicalis*), seaweeds, and lichens.

State, with a reason, which of the organisms listed above make up a single population.

.....

.....

(2 marks)

(b) The ecologists wanted to find out whether there was an association between the distributions of purple topshell snails and the common rock barnacle, *Semibalanus balanoides*.

Outline the method ecologists would use to collect data to determine whether or not such an association existed.

.....

.....

.....

(3 marks)

(c) A chi-squared test was carried out to determine whether or not there was a significant association between purple topshells and common rock barnacles on a rocky shore. When the calculated chi-squared value was compared to values in a critical values table it was found to be smaller than the critical value at a 0.05 probability level.

Deduce what can be concluded from this analysis?

.....

.....

(2 marks)