Exemplar exam question – Chapter 5, *Ecology and evolution*

Essay questions

Before starting to write, it is important to consider the command word in the question – in the question below, a comparison is required. This style of question could be part of an essay question on Paper 2 Section B.

Exemplar question

Compare the way in which autotrophs, heterotrophs and saprotrophs obtain energy. (6)

Student response

Autotrophs are green plants that have chlorophyll and can make their own food by photosynthesis. They make glucose, which can be converted to starch and stored or used for energy in respiration.

Heterotrophs are animals that eat food, digest it and absorb the digested molecules. Glucose, amino acids and fatty acids and glycerol are absorbed and used in cells for respiration to release energy. Glucose can also be stored as glycogen, which is converted back to glucose for respiration when it is needed.

Saprotrophs live on dead organic matter such as the bodies of plants or animals. Unlike heterotrophs, which eat, they secrete enzymes on to their food and absorb the products of digestion to use for energy.

Commentary

The serious error the student has made is to ignore the command word 'compare'. Few marks would be awarded for this answer because there is only one comparison made in the last sentence of the answer.

A better way to respond to questions asking for comparison can be to produce a table. This will focus clearly on the comparisons.

This candidate has included a lot of information here. A good deal of it is correct but some points are imprecise. For example, autotrophs *include* green plants but other organisms such as some bacteria are also able to photosynthesize. It is important to take care to refer to 'organisms' rather than limit the answer in this way.

It is also useful to include the terms 'organic' and 'inorganic' in presenting information on these types of organism. 'Heterotrophs obtain organic molecules from other organisms when they eat' is better than 'Heterotrophs are animals that eat food'.

Where appropriate, examples of each type of organism can be helpful. The student could have said, 'Saprotrophs, such as fungi ...' to make it clear that he or she understands the organisms involved.

Total marks awarded: 2 out of 6