Answers to end-of-chapter questions
Chapter 1: Classification

1 a movement, growth, nutrition, sensitivity, excretion

b reproduction, respiration

2 *Commiphora africana* and *Commiphora angolensis*, because they both belong to the same genus (*Commiphora*).

3 Your table should have these features:

- two columns headed 'Animal' and 'Plant'. There could also be a first column headed 'Feature'.
- comparable points in the same row. For example, the first row could be: 'nutrition' 'animals feed on organic food substances' and 'plants feed by photosynthesis'.
- three comparative points that make a correct statement about animals and plants, to include:
  animals feed on organic food substances, plants photosynthesise
  animal cells do not have cell walls, plant cells do
  animal cells do not have chloroplasts, plant cells often do.

4 Use this scheme to get a friend to mark your key, and you can mark theirs – it is difficult to make these judgements on the key you have written yourself.

each pair of statements describe one contrasting feature (e.g. blond hair, no hair rather than blond hair, brown eyes) [1]
for each pair, the correct statement can be decided without having to compare one person with another [1]
there are no more than four pairs of statements [1]
there are only three pairs of statements [1]
the key actually works [2]

5 a

diagram is significantly larger than the photograph
diagram has clean, clear, unbroken lines
relative proportions are correct
all visible structures are clearly shown
no shading or colour is used. [5]

5 b diameter on photograph is 44 mm
magnification is ×0.6, so actual diameter is $\frac{44}{0.6}$ = 73 mm; [3]

6 a *evidence against*
not made of cells;
no cell membrane / cytoplasm;
cannot carry out any of the features of living things (on its own);
can only reproduce when inside another living cell;

evidence for
contains DNA, which is normally found only in living things;
is able to reproduce to make more viruses like itself; [**max 5**]

b length of scale bar = 20 mm
convert both measurements to the same unit, e.g. 100 nm = 100 000 000 mm / 10^8 mm
so magnification = 100 000 000 ÷ 20
= ×5000 000. [4]