

1: Cells and cell processes – Topic questions

Paper 3

The questions in this document have been compiled from a number of past papers, as indicated in the table below.

Use these questions to formatively assess your learners' understanding of this topic.

Question	Year	Series	Paper number
1	2016	March	32
1	2016	June	32
6	2016	November	32

The mark scheme for each question is provided at the end of the document.

You can find the complete question papers and the complete mark schemes (with additional notes where available) on the School Support Hub www.cambridgeinternational.org/support

- 1 The boxes on the left contain the names of characteristics of living organisms. The boxes on the right contain the definitions of these characteristics.

Draw **one** straight line to link the characteristic with its correct definition.

An example has been done for you.

characteristic	definition
sensitivity	chemical reactions in cells that break down nutrient molecules and release energy
respiration	the ability to detect and respond to changes in the environment
nutrition	taking in of materials for energy, growth and development
excretion	an action by an organism causing a change of position or place
movement	removal from organisms of toxic materials and substances in excess of requirements
reproduction	a permanent increase in size
growth	the processes that make more of the same kind of organism

[5]

1 Fig. 1.1 shows four different reptiles.

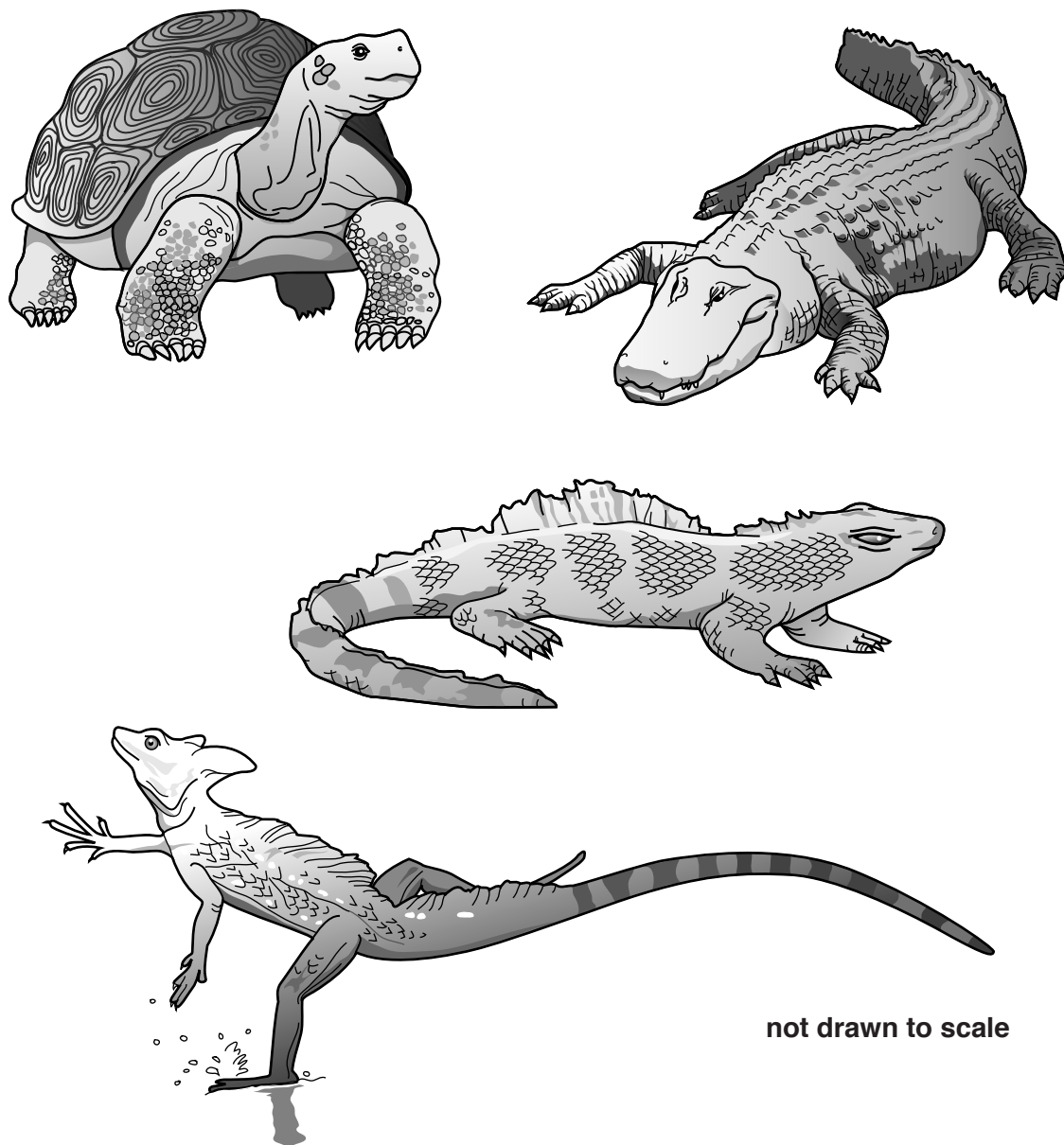


Fig. 1.1

(a) (i) Reptiles are vertebrates.

State **one** feature which all vertebrates have in common.

.....
.....[1]

(ii) State **two** features which can be used to identify the animals in Fig. 1.1 as reptiles.

1

.....

2

.....

[2]

(iii) Fig. 1.2 shows a snake.

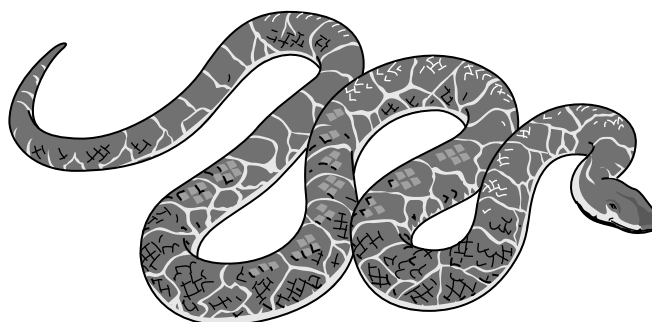


Fig. 1.2

Snakes are also reptiles. State **one** way, **visible** in Fig. 1.2, in which snakes are different from the reptiles shown in Fig. 1.1.

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.....[1]

Fig. 1.3 shows a newt, which looks similar to some reptiles, but belongs to a different vertebrate group.

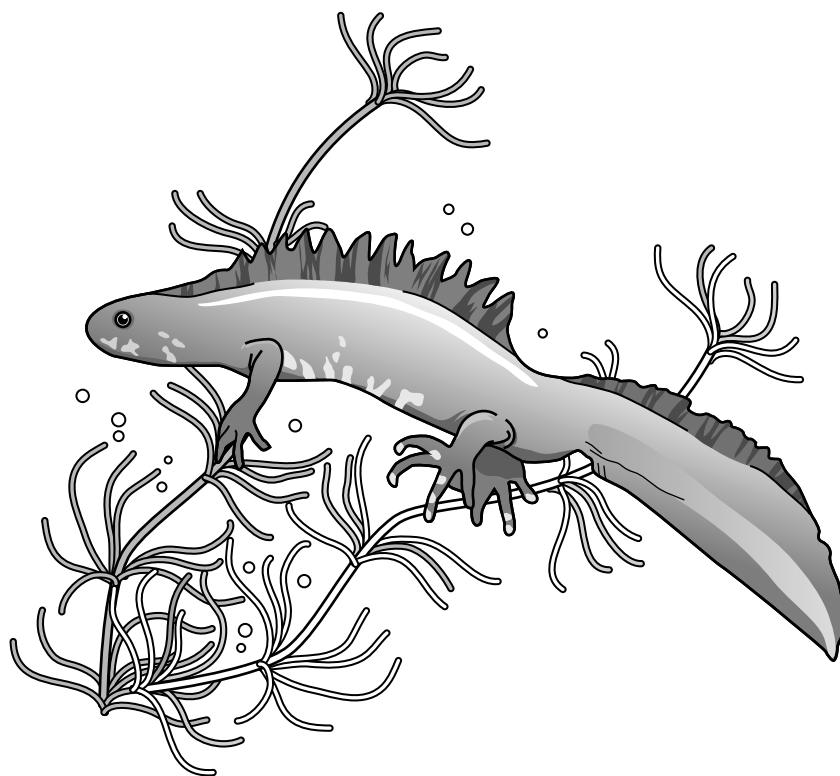


Fig. 1.3

- (b) (i)** State the vertebrate group to which the newt belongs.

Choose from this list and **circle** your answer.

amphibian bird fish mammal

[1]

- (ii)** State **two** features of this group which distinguish it from other vertebrate groups.

1

.....

2

.....

[2]

(c) In some species of reptile, the female keeps the fertilised eggs in her body until they are ready to hatch. Suggest **two** advantages of having this adaptive feature.

1

.....

2

.....

[2]

6 (a) Describe *osmosis*.

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.....

.....

.....[3]

(b) Fig. 6.1 shows a plant cell.

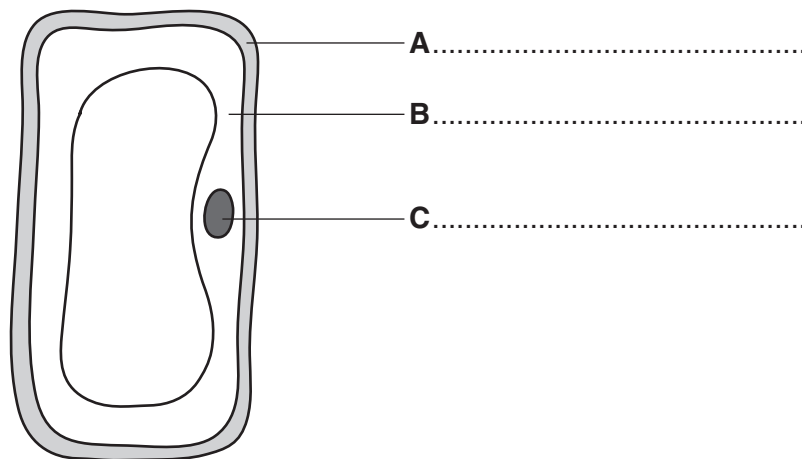


Fig. 6.1

(i) Name the structures labelled **A**, **B** and **C**.

Write your answers on Fig. 6.1.

[3]

(ii) On Fig 6.1, draw a label line **D** to show the position of the vacuole.

[1]

- (c) Fig. 6.2 shows the same cell in pure water. It is left there for 30 minutes.

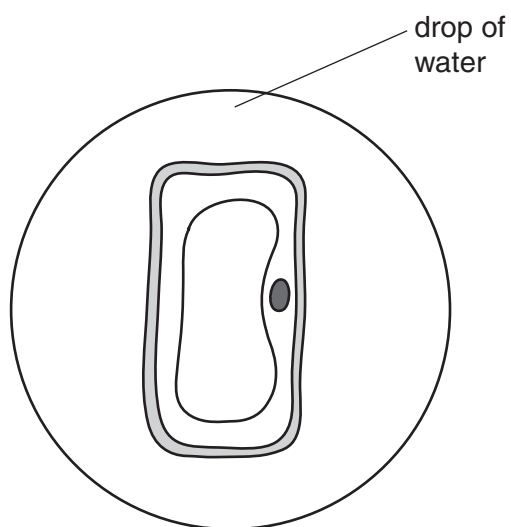


Fig. 6.2

Describe the changes that will occur in the cell during the 30 minutes it is in pure water.

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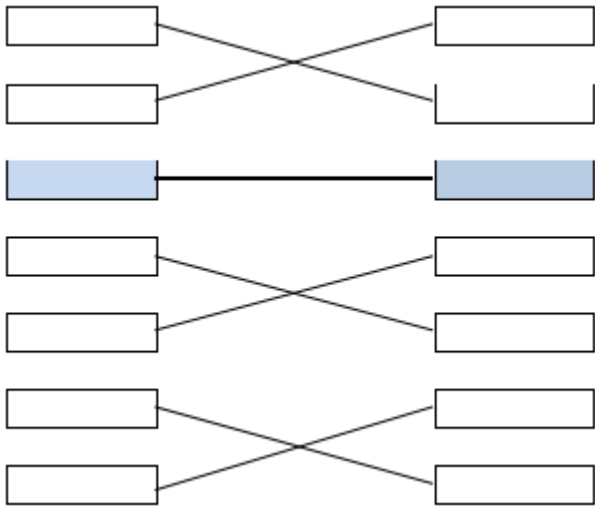
.....

.....[3]

[Total: 10]

Abbreviations used in the Mark Scheme:

;	separates marking points
/	alternatives
I	ignore
R	reject
A	accept (for answers correctly cued by the question, or guidance for examiners)
AW	alternative wording (where responses vary more than usual)
AVP	any valid point
ecf	credit a correct statement / calculation that follows a previous wrong response
ora	or reverse argument
()	the word / phrase in brackets is not required, but sets the context
<u>underline</u>	actual word given must be used by candidate (grammatical variants excepted)
max	indicates the maximum number of marks that can be given

Question	Answer	Marks
1	 <p>(1 mark per correct link; max 5)</p>	[5]
[Total: 5]		

Question	Answer	Marks
1(a)(i)	ref. to vertebral column / backbone ; skull ;	[max. 2]
1 (a) (ii)	dry skin ; ref. to scales ; eggs with, dry shell / leathery shell ;	[max. 2]
1 (iii)	no limbs / legs ;	[1]
1 (b) (i)	<u>amphibian</u> ;	[1]
1 (ii)	smooth skin / no scales ; gas exchange using skin ; spend part of life (cycle) in water and land / AW ; ref. to metamorphic life cycle / AW ;	[max. 2]
1 (c)	better survival of egg ; fewer eggs need to be produced ; less risk of predation ; maintains suitable temperature ; reduces risk of disease AW ; protected from external environment ;	[max. 2]
[Total: 9]		
6 (a)	movement of water; by diffusion /down a concentration gradient; through a partially permeable membrane;	[3]
6 (b) (i)	A: cell wall; B: cytoplasm; C: nucleus;	[3]
6 (b) (ii)	label line to end, on / in, central vacuole;	[1]
6 (c)	absorbs water/water moves or diffuses into cell /enters the cell; (cell) gets bigger; vacuole gets bigger; cell wall pushed out /AW; (cell) becomes turgid / turgor pressure increases; AVP;	[3]
[Total: 10]		