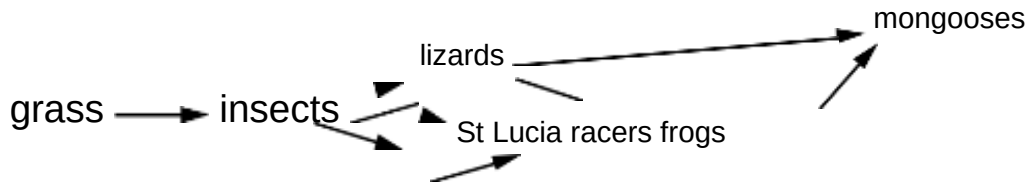


12
Section B

16 The St Lucia racer is the rarest snake in the world.

The snake lives on the island of St Lucia. The diagram shows a food web from St Lucia.



(a) How many secondary consumers are in this food web?

..... [1]

(b) Mongooses are described as both **predators** and **competitors** of St Lucia racers.



Explain why.

.....
.....
..... [2]

(c) Biomass is lost as it passes through this food web.

Put a ring around **two** ways that biomass is lost from this food web.

egestion growth photosynthesis respiration

[1]

17 Antibiotics and antiseptics are both used to kill bacteria.

(a) Which is a correct statement about antiseptics and antibiotics?

Tick (3) **one** box.

Antibiotics are not used inside the body, but antiseptics are.

☐

Antibiotics are used inside the body, but antiseptics are not.

☐

Antibiotics are used on living tissue and antiseptics on non-living tissue.

☐

Antibiotics are used on non-living tissue and antiseptics on living tissue.

☐

[1]

(b) Disinfectants also kill bacteria.

Some students do an experiment to see how well four different disinfectants (**A**, **B**, **C** and **D**) kill bacteria.

This is the method they use:

- Mix 2 cm³ of each disinfectant solution with liquid nutrient agar.
- Pour each of the mixtures into separate Petri dishes and allow to set.
- Spread bacteria on the surface of the agar.
- Put each Petri dish in an incubator.

(i) Describe how the students should spread bacteria on the surface of the agar.

.....

.....

..... [2]

(ii) The students' teacher told them **not** to seal the lid on the Petri dishes all the way round with tape.

Explain why.

.....

.....

..... [2]

- 18** In many areas, the number of elephants living in Africa is decreasing. They are often killed by hunters.

The table shows how the number of elephants in Africa has changed.

Year	1979	1989	2015
Population size	1.3 million	600 000	400 000

- (a)** Calculate the percentage decrease in the population size between 1979 and 2015. Give your answer to **2** significant figures.

Percentage decrease = % **[3]**

- (b)** What is the best description for how the population of elephants changed between 1979 and 2015?

Tick (3) **one** box.

Dropping at a decreasing rate

☐

Dropping at a steady rate

☐

Dropping at an increasing rate

☐

[1]

- (c)** In some areas of southern Africa, elephants are very important for ecotourism.

- (i)** Explain what is meant by the term **ecotourism**.

.....

.....

.....

..... **[2]**

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MARKING INSTRUCTIONS

PREPARATION FOR MARKING

RM ASSESSOR

1. Make sure that you have accessed and completed the relevant training packages for on -screen marking: *RM Assessor Online Training*; *OCR Essential Guide to Marking*.
2. Make sure that you have read and understood the mark scheme and the question paper for this unit. These are available in RM Assessor.
3. Log-in to RM Assessor and mark the **required number** of practice responses ("scripts") and the **required number** of standardisation responses.

MARKING

1. Mark strictly to the mark scheme.
2. Marks awarded must relate directly to the marking criteria.
3. The schedule of dates is very important. It is essential that you meet the RM Assessor 50% and 100% (traditional 50% Batch 1 and 100% Batch 2) deadlines. If you experience problems, you must contact your Team Leader (Supervisor) without delay.
4. If you are in any doubt about applying the mark scheme, consult your Team Leader by telephone, email or via the RM Assessor messaging system.
5. **Crossed Out Responses**
Where a candidate has crossed out a response and provided a clear alternative then the crossed out response is not marked. Where no alternative response has been provided, examiners may give candidates the benefit of the doubt and mark the crossed out response where legible.

Abbreviations, annotations and conventions used in the detailed Mark Scheme (to include abbreviations and subject -specific conventions).

Annotation	Meaning
/	alternative and acceptable answers for the same marking point
✓	Separates marking points
DO NOT ALLOW	Answers which are not worthy of credit
IGNORE	Statements which are irrelevant
ALLOW	Answers that can be accepted
()	Words which are not essential to gain credit
—	Underlined words must be present in answer to score a mark
ECF	Error carried forward
AW	Alternative wording
ORA	Or reverse argument

Question			Answer	Marks	AO element	Guidance
20	(a)		Lactic acid alters/lowers pH ✓ To measure the speed/rate of decomposition/decay ✓	2	2 x 2.2	ALLOW measure rate/speed of enzyme activity
	(b)		Any three from: Draw a line/scatter graph ✓ Put time on the x axis ✓ Put pH on the y axis ✓ Draw three lines, one for each temperature ✓	3	1 x 2.2	ALLOW sketched graph showing the correct marking points DO NOT ALLOW bar chart/histogram DO NOT ALLOW temperature on either axis ALLOW hrs on x axis ALLOW separate colours/key for each temperature IGNORE line of best fit ALLOW time and pH alone but not stated which axis for max 1 mark if no marks awarded
	(c)		(Increasing the temperature) will increase decay/decomposition ✓ (Increase in temperature) increases the kinetic energy ✓ (increase in temperature) more collisions ✓	3	1 x 2.2 1 x 3.1a 1 x 3.1a	ALLOW (increasing the temperature) will increase conversion of sugar into lactic acid DO NOT ALLOW decay stops at high temperatures ALLOW increase energy to move around / move faster IGNORE more energy ALLOW more enzyme substrate complexes
	(d)		The milk would not decompose / pH would not fall /change ✓ Bacteria would be killed / enzymes denatured / active site changes shape and substrate will not fit ✓	2	2 x 3.3a	ALLOW pH will be 6.5 / sugar can't convert into lactic acid IGNORE slows down decay/pH falls slower

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