Captivate
EDUCATION

Given name/s	
Family name	
Teacher	

Trial 1 external assessment 2027

Question and response book

Biology

Paper 1

SAMPLE

Time allowed

- Perusal time — 10 minutes
- Working time — 90 minutes

General instructions

- Answer all questions in this question and response book.
- QCAA-approved calculator permitted.
- Planning paper will not be marked.

Section 1 (20 marks)

- 20 multiple choice questions

Section 2 (29 marks)

- 6 short response questions

Practice material in the layout of the 2025 QCAA external assessment. Not a QCAA assessment.

Sample pages only. Full paper and marking guide: captivateeducation.com.au/trial-exams/qce/biology

Section 1

Instructions

- This section has 20 questions and is worth 20 marks.
- Use a 2B pencil to fill in the A, B, C or D answer bubble completely.
- Choose the best answer for Questions 1–20.
- If you change your mind or make a mistake, use an eraser to remove your response and fill in the new answer bubble completely.

	A	B	C	D
Example:	●	○	○	○

	A	B	C	D
1.	○	○	○	○
2.	○	○	○	○
3.	○	○	○	○
4.	○	○	○	○
5.	○	○	○	○
6.	○	○	○	○
7.	○	○	○	○
8.	○	○	○	○
9.	○	○	○	○
10.	○	○	○	○
11.	○	○	○	○
12.	○	○	○	○
13.	○	○	○	○
14.	○	○	○	○
15.	○	○	○	○
16.	○	○	○	○
17.	○	○	○	○
18.	○	○	○	○
19.	○	○	○	○
20.	○	○	○	○

Ensure you have filled an answer bubble for each question.

SAMPLE

Do not write outside this box.

Section 2

Instructions

- Write using black or blue pen.
- If you need more space for a response, use the additional pages at the back of this book.
  - On the additional pages, write the question number you are responding to.
  - Cancel any incorrect response by ruling a single diagonal line through your work.
  - Write the page number of your alternative/additional response, i.e. See page …
  - If you do not do this, your original response will be marked.
- This section has six questions and is worth 29 marks.

DO NOT WRITE ON THIS PAGE
THIS PAGE WILL NOT BE MARKED

SAMPLE

Do not write outside this box.

QUESTION 21 (4 marks)

a) Explain how transcription factors regulate the expression of a gene. *[2 marks]*

b) Describe how chemical tags that affect chromatin structure influence whether a gene is expressed. *[2 marks]*

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Do not write outside this box.

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Biology marking guide and response

Trial 1 external assessment 2027 · Paper 1 · 49 marks

Teacher copy – not for distribution to students.

Where a response does not meet any of the descriptors for a question or a criterion, a mark of '0' will be recorded.

SAMPLE

Marking guide

Multiple choice

Question	Response	Explanation
1	**D**	**Correct:** Genetic diversity is variation in alleles among individuals of the same species; shell pattern varying within one snail population is exactly that. **Common errors** • A confuses genetic diversity with species diversity. • B confuses genetic diversity with ecosystem diversity. • C describes total abundance, which is not a measure of diversity at any level.
2	**B**	**Correct:** Relative abundance = 28 ÷ 80 × 100 = 35%. **Common errors** • A reads the raw count as a percentage. • C calculates the relative abundance of *Xanthorrhoea* (32 ÷ 80) instead. • D divides *Hakea* by *Xanthorrhoea* (28 ÷ 32) rather than by the total.

3	**C**	**Correct:** N = (60 × 45) ÷ 15 = 2700 ÷ 15 = 180. **Common errors** • A swaps *n* and *m*, giving (60 × 15) ÷ 45 = 20. • B adds the three values (60 + 45 + 15) instead of applying the index. • D multiplies *n* by *m* (45 × 15) and omits the division.
4	**C**	**Correct:** Stratified sampling divides the area into the recognised zones (strata) and samples within each, so each zone is represented. **Common errors** • A would leave some zones unsampled or unevenly sampled by chance. • B places samples at fixed intervals, which does not guarantee coverage of each zone. • D is a sampling technique for estimating animal population size, not a method for comparing plant diversity between zones.
5	**C**	**Correct:** 520 ÷ 4000 × 100 = 13%. **Common errors** • A divides by the producer figure (520 ÷ 40 000) instead of the primary consumer figure. • B calculates the producer to primary consumer transfer (4000 ÷ 40 000). • D gives the energy *lost* rather than the energy transferred.
6	**A**	**Correct:** One species benefits and the other is unaffected, which defines commensalism. **Common errors** • B requires both species to benefit. • C requires the host to be harmed. • D requires one organism to kill and consume the other.

SAMPLE

7	**A**	**Correct:** Dingoes are the only predator of red kangaroos and share predation of rabbits. Removing them releases both herbivores from predation pressure, raising grazing pressure on the native grasses they feed on. **Common errors** • B assumes goannas could fully compensate; the web shows they take only rabbits and dunnarts, not kangaroos. • C applies direct feeding links only and ignores indirect (trophic cascade) effects. • D misreads the web — grasshoppers feed on acacia shrubs, not native grasses.
8	**D**	**Correct:** Bare rock offers no soil, no shade and wide temperature swings, so tolerance of extremes is what allows a pioneer to establish. **Common errors** • A and B describe K-selected traits, which suit stable late-successional communities, not bare rock. • C is impossible on bare rock — pioneers must establish before soil exists. • B also conflicts with the rapid reproduction typical of colonisers.
9	**B**	**Correct:** The curve rises steeply to about year 20 and then flattens towards a plateau near 8000, so each additional year adds fewer individuals — the growth rate is falling as the population nears carrying capacity. **Common errors** • A describes the early part of the curve only; exponential growth would continue to steepen. • C confuses a smooth curve with a constant gradient. • D would require the curve to rise above the plateau and then fall, which it does not.
10	**C**	**Correct:** Histones are the proteins DNA winds around, allowing a long DNA molecule to be packaged compactly into a chromosome. **Common errors** • A describes DNA ligase. • B describes helicase. • D describes transcription factors.

SAMPLE