



Leaving Certificate Biology Report 2022

The following report is prepared from observations forwarded to the Biology convenor by ISTA members.

General Comments on the 2022 Biology Higher Paper

This year's paper was considered fair by Biology teachers. The choice of questions for students after their experience of senior cycle (due to Covid) was considered good. A broad range of topics were examined. There was a nice balance between plant and animal biology. Questions were worded in a straightforward manner. The clarity of diagrams was good.

Higher Level

Section A

The short questions were considered accessible and straightforward overall.

Q1 (a) – (f) Straightforward question on biomolecules.

Q2 (a) – (g) Straightforward question on the ecology definitions.

Q3. The use of the word karyotype, even though explained, may have been confusing for some students. Otherwise, a straightforward question.

Q4. (a) – (d) Straightforward question on mitochondria and respiration.

Q5. (a) – (g) A nice mix of questions.

Q6. (a) – (f) Straightforward but testing question on lipase. It was thought that students may find part (a) challenging.

Q7. (a) – (f) Straightforward question on the viruses using the very topical SARS-CoV-2.

Section B

The experiment questions were accessible and straightforward overall.

Specifying which experiments to expect in each question helped reduce students' anxiety about this section.

Q8. A nice straightforward question on cells and microscopy.

Q9. A straightforward question on the photosynthesis experiment though students may find part (vi) testing.

Q10 Straightforward question on investigating the effect of IAA on plant tissue.

Section C

Having the graph paper sheets together at the front of the answer book was a welcome change.

Overall the questions were fair.

Q11. A nice straightforward microbiology question.

- (a) Straight forward question on working with microorganisms.
- (b) Fair question on bacteria and antibiotics.
- (c) A fair question on batch / continuous flow processing and growth curves.

Q12. A fair but testing question on ecology.

- (a) Straightforward definition question.
- (b) A fair but testing comprehension question.
- (c) Fair question on the carbon cycle, pollution and factors affecting the human population.

Q13. A testing question on genetics.

- (a) Fair question on nucleotide structure.
- (b) A testing question on protein synthesis, though students were assisted by a good clear diagram.
- (c) Overall a nice genetic cross question. Concern was raised that part (ii) will be misunderstood by students.

Q14. A testing question on photosynthesis and the cell cycle.

- (a) Straightforward question.
- (b) A testing question on photosynthesis.
 - (iii) students may answer hydrogen ions or electrons here – “molecule Y” on its own in the diagram may have caused them confusion.
- (c) Fair question on the cell cycle.

Q15. (a) A nice question on excretion and homeostasis.
(b) A mostly straightforward question on the kidney.

- (i) The function of the layer of fat around the kidneys is not mentioned in the syllabus or guidelines?

(c) Fair and testing question on root structure and movement of water in plants.

- Q16. (a) Fair question on the nervous system.
(b) Straightforward question on the eye and senses.
(c) Fair question on musculoskeletal system.
(d) Straightforward question on the plant reproduction.
- Q17 (a) Fair evolution question.
(b) Straightforward question on the human reproduction.
(c) A testing question on plant reproduction.
 (ii) Students may struggle with describing how “seeds contribute to the formation of fruit”.
(d) Fair and testing question on the heart.

General Comments on the 2022 Biology Ordinary Level Paper

The choice of questions for students after their experience of senior cycle (due to Covid) was considered good. A good range of topics were examined with a nice balance between plant and animal biology. Questions were worded in a straightforward manner. The diagrams were clear.

Ordinary Level

Section A

The short questions were accessible and straightforward.

Q1. Straightforward question on biomolecules.

Q2. Straightforward question on respiration.

Q3. Straightforward question on fungi.

Q4. Straightforward question on the skin.

Q5. Straightforward question on the DNA profiling.

Q6. Nice mixed question.

Q7. Straightforward question on the Scientific Method.

Section B

The experiment questions were accessible and straightforward overall. Specifying which experiments to expect in each question helped reduce students' anxiety about this section.

Q8. Straightforward question on ecology.

Q9. Straightforward question on the production of alcohol by yeast.

Q10. Mostly straightforward.

(iii) Concern was raised that some students would use an anaerobic jar instead of boiled water and oil.

Section C

Overall the questions were straightforward and fair.

Q11. Fair and straightforward question on Ecology.

(a) Straightforward question on ecology definitions.

- (b) Straight forward question.
- (c) Straightforward question.

Q12. Fair and testing question on genetics and cell division.

- (a) Straightforward question on genetic terms.
- (b) Fair but testing question.
- (c) Fair but testing question on cell division.

Q13. Fair and testing question on the breathing system.

- (a) and (b) straightforward questions on the lungs.
- (c) Concern was raised that students preparing for section B (Mandatory experiments), may have excluded question 10 (which contains investigation on effect of exercise on breathing or heart rate) which would have put them at a disadvantage here.

Q14. A fair question on photosynthesis and osmosis.

- (a) Straightforward question on enzymes.
- (b) Mostly straightforward question on photosynthesis.
- (c) Straightforward question on osmosis.

Q15. A fair question on plant biology.

- (a) Straightforward question on plant responses.
- (b) Straightforward question on plant structure.
- (c) Straightforward question on plant reproduction.

Q16. (a) A straightforward question on human reproduction.
(b) Straightforward question on bacteria and antibiotics.
(c) Straightforward question on the musculoskeletal system.
(d) Fair and testing question on plant propagation.

Q17. (a) A straightforward question on the nervous system.
(b) A straightforward question on evolution and genetic engineering.
(c) Testing question on the circulatory system.
(d) A straightforward question on the digestive system.

Rough Breakdown of questions asked from Units 1,2 and 3

Higher Level

Section A

Unit 1 – two questions – Q1 biomolecules, Q2 ecology

Unit 2 – two questions – Q3 genetics, Q4 respiration

Unit 3 – two questions – Q6 Lipase, Q7 Viruses

+ one question mixed (Q5)

Section C

Unit 1 – one question – Q12 ecology

Unit 2 – two questions – Q 13 genetics, Q14 photosynthesis and cell cycle

Unit 3 – three questions – Q11 microbiology, Q15 Homeostasis, excretion, movement of water in plants, Q16 nervous system, eye, musculoskeletal system, reproduction in flowering plants.

+ Q17 evolution, human reproduction, reproduction in flowering plants, circulatory system.

Ordinary Level

Section A

Unit 1 – two questions – Q1 biomolecules, Q7 scientific method

Unit 2 – two questions – Q2 respiration, Q5 genetics,

Unit 3 – two questions – Q3 Fungi, Q4 skin, Q6 mixed

Section C

Unit 1 – one question – Q11 ecology

Unit 2 – two questions – Q12 genetics, cell cycle, Q14 photosynthesis, osmosis,

Unit 3 – three questions – Q13 breathing system, Q15 plant biology, Q16 human reproduction, microbiology, musculoskeletal system, plant propagation.

+ Q17 nervous system, evolution and genetic engineering, circulatory system, human nutrition.

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