External Assessment Report 2015

Subject(s)	Biology
Level(s)	Intermediate 2

The statistics used in this report are prior to the outcome of any Post Results Services requests.

This report provides information on the performance of candidates which it is hoped will be useful to teachers/lecturers in their preparation of candidates for future examinations. It is intended to be constructive and informative and to promote better understanding. It would be helpful to read this report in conjunction with the published question papers and marking instructions for the examination.

Comments on candidate performance

General comments

In the final year of the Intermediate 2 Biology Course, there was a 93% reduction in the number of candidates. Generally centres had prepared candidates well. This meant that the majority of candidates were able to complete all sections of the question paper. Some candidates performed to an exceptionally high standard and should be congratulated.

This year markers reported a better performance in calculations; however a disappointing performance in the bar graph. Section C Extended Response answers showed a better standard of answer with few candidates not attempting both questions.

Areas in which candidates performed well

Section A

The following questions were answered well : Q1, 2, 3, 4, 13, 15, 17, 18 and 20 with 70% or more of candidates answering these questions correctly.

Section B

Question 1: Most candidates were able to identify cell structures and functions.

Question 2: Most candidates knew that the product of phosphorylase was starch.

Question 4: Most candidates were able to name the first stage of photosynthesis as photolysis and identify oxygen as diffusing out of the leaf.

Question 5: Most candidates performed exceptionally well in completing the food chain and identifying named examples of a habitat, carnivore and predator.

Question 6: Most candidates were able to describe changes to make the experiment reliable.

Question 7: Most candidates were able to name the process of zygote formation as fertilisation.

Question 8: Most candidates were able to use the family tree to select information, complete the Punnett square and calculate percentage chance.

Question 10: Most candidates were able show good processing of information by calculating temperature rise and energy content using the given formula. Many candidates were able to identify nitrogen as the chemical element found only in proteins not fats or carbohydrates and were able to name the product of deamination as urea.

Question 11: Most candidates performed well, calculating the increase in blood supply to the heart during exercise. Many were also able to describe the effect of a blockage in the coronary artery.

Question 12: Almost every candidate was able to select and process information to calculate the volume of water gained from food. Most candidates were able to process information to calculate the mass of water in the student's body.

Question 13: Most candidates were able to select information to describe temperature regulation.

Section C

Question 1A: Almost every candidate who chose this option was able to name yeast as the microbial cell, and most gave good basic descriptions of bread and wine making.

Question 1B: Most candidates choosing this option gave good descriptions of osmosis and diffusion.

Question 2A: Fewer candidates chose this option but those that did were able to describe basic features of the villus.

Question 2B: More candidates chose this option and gave good descriptions of the function of the reflex action. Some gave good descriptions of the pathway.

Areas which candidates found demanding

Section A

These questions were answered correctly by less than half of the candidates: Q5, 7, 10, 16 and 24.

Section B

Question 2(a)(ii): Most candidates had difficulty in explaining the purpose of the given control as investigating if the substrate was required to produce starch.

Question 3: Few candidates were able to name the process requiring oxygen as aerobic respiration; many stated only respiration. Very few candidates were able to explain that oxygen was needed to provide energy for the activity of the hummingbird; most described the relationship. Very few candidates gave the reason for increased oxygen consumption as providing heat energy to keep the bird warm or maintain body temperature.

Question 5(b): Few candidates were able to give the meaning of biodiversity.

Question 6: Few candidates were able to give both changes required to the setup, and many described changes to temperature. Most candidates described active hiding from predators not the required link to humidity aiding gas exchange.

Question 7: Few candidates linked sperm to both chromosome complements, and more than a few used the wrong options of anther, ovule and pollen. Few could name a process increasing variation during gamete formation such as random assortment.

Question 9: Few candidates used figures from the graph to describe the changes therefore lost one of the two marks for this question.

Question 10: Few candidates named a correct variable; many gave the ones already stated. Few candidates gave a clear explanation of the role of bile; many used descriptions which were for enzyme action on fats.

Question 12(a)(ii): Few candidates were able to work out a suitable scale for the Y axis.

Question 13: Many candidates were unable to complete the table to identify parts of the brain and their function.

Advice to centres for preparation of future candidates

Although this is the final year of the Intermediate 2 Biology Course, going forward many of the following points will remain relevant to National 5 Biology.

As in previous years, candidates need to read questions more carefully so they can give the answers to achieve maximum marks. Candidates should be encouraged to underline the important words in the question, helping them to focus on what is needed in their answer.

Candidates should use the published SQA marking instructions to help them to find the correct language for their answers. Marking Instructions allow centres to see detailed general and specific advice for marking Biology assessments and to gauge the level of detail required for specific topics.

This should help to inform the marking of internal assessments and so aid estimate setting for future candidates.

In many topics practical work helps to reinforce knowledge and understanding. If time for practical work is limited, suitable videos could be used. An example of this might be the choice chamber in Question 6. However, this may become less of a problem in the future with the emphasis on active learning in the CfE courses.

Candidates still show difficulty in understanding the difference between ‘describe’ (state what happened), and ‘explain’ (give a reason for what happened). The type of answers required for each are exemplified in the marking instructions for SQA past question papers.

Candidates should be encouraged to use the exact headings from the results table for the labels on graphs and ensure the useable part of the scale fills at least 50% of the given graph paper. The scale must also be suitable to plot the values given for both line and bar graphs.

This year, as in previous years, most centres have prepared candidates well for the Course assessment. However, centres are reminded to refer to the National 5 Biology pages on SQA's website; these provide the most up-to-date information needed to prepare future candidates.

Another valuable tool to aid understanding of the required standard for National 5 Biology is available on SQA's Understanding Standards website.

http://www.sqa.org.uk/sqa/72990.5926.html

Statistical information: update on Courses

Number of resulted entries in 2014	7013

Number of resulted entries in 2015	444

Statistical information: Performance of candidates

Distribution of Course awards including grade boundaries

Distribution of Course awards	%	Cum. %	Number of candidates	Lowest mark
Maximum Mark	100			
A	19.6%	19.6%	87	70
B	22.3%	41.9%	99	59
C	22.7%	64.6%	101	49
D	10.8%	75.5%	48	44
No award	24.5%	-	109	-

For this Course, the intention was to set an assessment with grade boundaries close to the notional values of 50% for a Grade C and 70% for a Grade A.
Question 3(b)(ii) was intended to be accessible to Grade A candidates; however it proved more difficult than intended. This only affected Grade A candidates.The grade boundary was decreased by 1 mark for Grade A to reflect this.

General commentary on grade boundaries

- While SQA aims to set examinations and create marking instructions which will allow a competent candidate to score a minimum of 50% of the available marks (the notional C boundary) and a well prepared, very competent candidate to score at least 70% of the available marks (the notional A boundary), it is very challenging to get the standard on target every year, in every subject at every level.

- Each year, SQA therefore holds a grade boundary meeting for each subject at each level where it brings together all the information available (statistical and judgemental). The Principal Assessor and SQA Qualifications Manager meet with the relevant SQA Business Manager and Statistician to discuss the evidence and make decisions. The meetings are chaired by members of the management team at SQA.

- The grade boundaries can be adjusted downwards if there is evidence that the exam is more challenging than usual, allowing the pass rate to be unaffected by this circumstance.

- The grade boundaries can be adjusted upwards if there is evidence that the exam is less challenging than usual, allowing the pass rate to be unaffected by this circumstance.

- Where standards are comparable to previous years, similar grade boundaries are maintained.

- An exam paper at a particular level in a subject in one year tends to have a marginally different set of grade boundaries from exam papers in that subject at that level in other years. This is because the particular questions, and the mix of questions, are different. This is also the case for exams set in centres. If SQA has already altered a boundary in a particular year in, say, Higher Chemistry, this does not mean that centres should necessarily alter boundaries in their prelim exam in Higher Chemistry. The two are not that closely related, as they do not contain identical questions.

- SQA's main aim is to be fair to candidates across all subjects and all levels and maintain comparable standards across the years, even as arrangements evolve and change.