General Certificate of Education

Environmental Studies 1441

ENVS1 The Living Environment

Report on the Examination

2010 examination - June series

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General

On the whole, this paper seemed to be relatively straightforward and most candidates attempted all the questions. The mean was higher than the previous ENVS1 papers and this reflects, perhaps, that candidates have become more used to the style of the questions. This paper provided good discrimination between candidates, as the standard deviation was also higher than previously. There was evidence to suggest that the most able candidates were appropriately challenged and that the weakest could also gain credit.

Typically for this paper, the most common issue discussed by the examiners was the standard of English of the vast majority of the candidates. A significant number of marks were lost through poor expression and lack of accurate terminology. The questions were often read carelessly which produced vague, irrelevant responses. In addition, a large number of candidates waste time by rewriting the stem of the questions.

'How Science Works' is fundamental to Environmental Studies but frequently the scripts do not demonstrate that these concepts are well understood. Candidates ought to be able to explain the scientific principles that underpin the practical techniques that they are expected to know. Unfamiliar material will be presented and candidates will be tested on their understanding of the processes of scientific investigations.

Question 1

Candidates seem to be unsure about many of the applications of the specified practical techniques, only about a third gained full marks. However, nearly 95 % got at least two marks. The most common mistakes were to respond that collection of aquatic invertebrates was done by a pooter or biotic index rather than kick sampling and quadrats are used instead of a diversity index.

Question 2

This question ought to have been straightforward, but it proved to be a useful discriminator between those candidates who had learned the terminology and read the question carefully, and those who simply had not. The first part 2 (a) was intended to clue the candidates into the concepts required for the rest of the questions, this clearly failed.

(a) A number of responses illustrated how few had learned the textbook definition of a niche. Many appear to believe that a niche is an 'area' occupied by a species or its 'purpose'. Quite a few tried (unsuccessfully) to use the table by giving answers such as 'an ecological niche is a description of the feeding location, body mass, altitude range, etc'. There was clearly a lot of guesswork. It is perhaps worth emphasising three aspects to the definition, ie. 'role', biotic interactions and abiotic interactions.

(b) (i) The majority of candidates gained both marks, but others did not appreciate that the 'why' in the stem of the question required some explanation of why the feature would increase hunting pressure. Repeating the correct part of the table was not enough.

A significant number misinterpreted the question or did not understand what 'hunting pressure' meant. So they answered in terms of the drills' large body mass and large family groups meaning that they had to hunt more to get enough food. In other words, drills doing the hunting rather than being hunted.

Some assumed that large family groups equated with larger population size, rather than more in one place at the same time.

(b) (ii) Lack of precision in the use of the information meant that less than half got both marks.

(b) (iii) This was quite straightforward and most got both marks.

(c) It was common to see descriptions of what biological corridors are, rather than answering the question by explaining why they are important for conservation. Hedgerows are understood by many to be synonymous with corridor, and there were a number who regard corridors as barriers. There were many references to increasing species diversity rather than genetic diversity, thus reflecting an apparent belief that interbreeding leads to speciation. More positively, the value of corridors increasing the gene pool was widely recognised. Biological corridors are more about reducing the loss of biodiversity rather than increasing it.

A significant number appear to think that interbreeding means mating between different species, clearly showing no real understanding of what a species is. As usual there was considerable confusion between inbreeding and interbreeding. It should be emphasised that inbreeding does not cause mutations.

Question 3

This was quite a high scoring question overall.

(a) Two easy marks for over 80 % of candidates. However, some transposed the two gases. Nitrogen was a common incorrect response and a few gave a list of gases, apparently hoping that the examiner will choose the correct answer, which they will not.

(b) Less than half managed to score two or more marks, illustrating that the majority know very little about the Environmental Stewardship Scheme. Those few (less than 8 %) that did appear to have some knowledge usually scored well (four or five). The rest tended to waffle, making very vague statements. For example, comments about farmers being 'rewarded' were not given marks. Not many seemed to know that the financial support for farmers depends on a points target being met. Many had ignored, or not noticed, that the question was about the protection of plants, hence references to beetle banks (unless related to plant pests) and bird boxes etc were not credited.

Frequent incorrect answers included: provision of footpaths/ access, protection from development, controlling picking flowers and creating seed banks. Quite a few wrote about the concept of 'stewardship' in terms of protecting things for future generations, rather than answering the question.

(c) This question has appeared quite frequently in the past, but only 25 % managed to score all three marks. There was general confusion with other designations such as AONB, Green Belts and NNR. The purpose of a National Park is not primarily about:

- Educating the public/research
- Conserving areas of natural beauty – there needs to be a reference to landscape or every bluebell wood would be designated as a National Park, anyway AONBs do this.
- Stopping development
- Conserving for future generations
- Enhancement of landscape

Most of these are done but are not the stated purpose.

Question 4

(a) (i) Quite well known although there were a variety of incorrect answers, including: DEFRA, Lincoln Index, Green Belt, Public Inquiry and Cost Benefit Analysis.

(a) (ii) Over 60 % got both marks. A number evidently did not read the question very well and answered in terms of food chains.

(a) (iii) Again, over 60 % got this right. Correct answers that are not covered in the specification (Red data list, BAP list, Species Action Plan and Species Recovery Programme) were unsurprisingly rarely seen. Please note that CITIES instead of CITES is not acceptable.

(b) Surprisingly badly done, with less than 30 % getting both marks. The concepts of Green Belt and brownfield sites are frequently confused. Misconceptions included: Green Belts prevent the expansion of brownfield sites; wildlife from the Green Belt will outcompete or predate the brownfield site organisms; Green Belts are unspoilt or that they look after wildlife.

(c) (i) Only 30 % got the required definition of carrying capacity. Most responses were vague and imprecise. Many candidates seem to think that it refers to an area.

(c) (ii) Generally well answered with more than half getting both marks. Disease and food were the most frequently seen responses. There were some who gave 'competition' but without saying for what. Vague references to habitat and space were also not credited. Lists were sometimes given- they do not get marks when only two points are required. There were a few who wrongly gave density-independent factors.

Question 5

(a) Responses to this question were typically very vague. For example, there were many references to 'recording' or 'analysing' the results, 'assessing' the numbers of invertebrates and leaving the traps for 'a certain amount of time'. Less than 30 % gained two or more marks for this four mark question. A significant number of candidates described what a pitfall trap actually is rather than how it is used. Many candidates revealed misunderstandings about the function of the cover on the trap, stating that it hides the trap so that insects will walk on top of it and fall in, or that it traps the animals once they are in.

Candidates must learn how to add appropriate detail to questions on practical techniques. They should explain how to standardise sampling, how to avoid bias, where traps should be set, how long they should be left, how many traps should be set and precisely what is to be counted.

Unfortunately, diversity indices and the Lincoln Index are frequently mistaken. Even though the mark-release-recapture technique was inappropriate, it was notable how badly explained it was.

(b) This question elicited a wide range of responses, the few candidates who realised that it was about succession tended to give good answers. Those who wrote about management practices in general did not score highly, the better answers focussed on plagioclimaxes. Some focussed only on changes in animal diversity, ignoring plants entirely. A number were concerned that the coppicing cycle would lead to substantial changes in soil fertility, which is not likely. Candidates also assumed that stopping coppicing would lead to the loss of woodland. If the question had been about deforestation, it would have been made clear. The term 'extinction' was often used incorrectly to mean local extinction.

Question 6

(a) Most candidates seemed to know which factors are important for coral survival, but the points that were made were often too vague for credit. An outline of the abiotic factors was required, so a list (eg salinity, light, temperature, pH etc.) was insufficient. Factors must be explained or qualified (low/high etc.). It was common to see comments such as the 'correct temperature range' without an indication of what that range might be or an explanation of why it is important.

(b) This question has been asked before so it was disappointing to note that only about 11 % got both marks. The fact that CITES bans international trade was well known, but there were too many references to CITES banning hunting, and protecting areas. Few understood that restricting trade has consequences for demand, profit or markets.

(c) (i) Over 40 % of candidates scored three or more marks but the majority of answers to this question revealed a poor understanding of how sediment affects corals. The phenomenon of coral bleaching is well known, but not what causes it. 'Pollution' by itself rarely gets any credit, but in far too many scripts that was all the level of detail given. Sediment settling on coral does not refer to large objects such as rocks, boulders and tree trunks crashing into the reef. Incorrect references to polyps being denatured, eutrophication (caused by pesticides) and the effects on fish (not coral) were also quite common.

(c) (ii) 'Education' was almost universally suggested, and was often the only mark awarded. It was reasonably well known that touching coral is damaging and that dive guides are sometimes used. The data were often misinterpreted, with many suggesting that diving in large groups is much better than diving in small groups. Unrealistic statements about making people dive where there are no reefs were sometimes suggested. The question did not refer to fishing, so references about banning cyanide or dynamite fishing were not credited.

(d) Many wrote good answers and there was plenty of evidence of candidates who had read the textbook. The aesthetic value was often mentioned without qualifying what this means in this context. This question was about coral reefs, so points about souvenirs, jewellery and building materials were not credited. Many referred to the photosynthetic activity of reefs and some described their value in terms of carbon storage. However, many incorrectly assumed that oxygen production was more important.

Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the **Results statistics** page of the AQA Website.