Grade boundary information for this subject is available on the WJEC public website at: https://www.wjecservices.co.uk/MarkToUMS/default.aspx?l=en

Online results analysis

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Annual Statistical Report

The annual Statistical Report (issued in the second half of the Autumn Term) gives overall outcomes of all examinations administered by WJEC.

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General Introduction

Performance on this paper was generally disappointing. In structured questions where prompts were available then candidates usually gained many of the marks. This included questions where graphs had to be drawn and simple calculations performed. However, responses were very often of a low standard in those questions that required the recall of information.

Questions often require very careful reading and students should be encouraged to read each question more than once. In question 2, data was provided on the age at which pupils first consumed alcohol. Almost every candidate read the information in the question as if it related to the amount of alcohol consumed at each age group. This careless interpretation of data lost candidates many marks. In question 4 candidates were shown all the chromosomes in the body cell of an animal – there were 10 of them. The first question asked how many chromosomes were shown in the diagram. Many candidates responded with 23 as their answer. Another question, which required very careful reading, was number 6, the genetics question. Many candidates seemed to skim over the given information in an attempt to get quickly on with answering the questions. This ploy lost many marks.

Foundation

1. (a) Generally well answered with most candidates gaining some marks. Genus and species were frequently confused.

   (b) (i) The advantage of having ears with a large surface area was not well understood. Answers ranged from ‘to keep cool’ to ‘provision of shade for the head’. Examiners were looking for a comparative answer such as ears with a large surface area allow the loss of more heat.

   (ii) I. Generally well answered although far too many answered 3.

       II. Most candidates understood how sandy coloured fur provided camouflage which allowed the fennec fox to blend into the background. Most linked this feature with prey or predators and gained the second mark.

   (c) Most gained this mark
2. (a) (i) Most gained all 3 marks here. The quality of the bar chart was generally good.

(ii) Candidates’ almost universal interpretation of the data table and graph was that alcohol consumption increased with age, i.e. they considered that the data related to the volume of alcohol consumed at each age. The most common incorrect answer seen was ‘the older the pupils get the more they drink’. Therefore few candidates gained marks here. A few candidates gained a mark for appreciating that as age increased more pupils have consumed alcohol, but very few identified the anomaly at 14 years of age.

(b) The importance of a large sample size was not known. Answers here were either left blank or referred to fair testing.

(c) Generally well answered.

3. (a) The quality of the response here was often poor. Sense organ and stimulus were often reversed. Hearing and seeing were frequently given as the stimuli. Noise was not accepted for sound.

(b) (i) Some correct answers were seen here but impulse was not generally known. Electrical signal or electrical impulse gained the mark but electricity or electric/electronic signals failed to score.

(ii) Generally well answered although ‘nerves’ was a frequently seen incorrect answer.

4. (a) (i) Many gained this mark although 8 and 46 were frequently seen incorrect responses. Incorrect responses were indicative of the fact that the candidate failed to read the information above the diagram – ‘the diagram below shows all the chromosomes …’

(ii) Most candidates attempted an answer referring to the presence of an X or Y chromosome. Some of these candidates gained the mark but far too often the answer just didn’t make any sense e.g. ‘X chromosome is dominant.’

(iii) Some candidates gained this mark and error carried forward was allowed from (a)(i). But, far too often the number given bore no relationship to the number given in (a)(ii).

(iv) A large range of incorrect answers were given here. 1000 and 4000 were frequently seen incorrect responses. Some candidates correctly answered 2000 but failed to gain the second mark because they did not state that chromosomes are paired structures. (Even though the chromosomes are numbered and arranged in pairs in the diagram.)

(b) There seemed to be a lot of guessed responses here. Few candidates gained 2 or 3 marks.

(c) Very few candidates gained this mark. Ionising and UV radiation were not known. Nuclear radiation and X-rays were frequently seen incorrect responses.
5. (a) (i) Most gained this mark. A few omitted the unit and lost the mark.

(ii) Plots were generally accurate. ±0.5 small square tolerance was allowed for the position of the plot. Far too many candidates use very large ‘blobs’ or very large Xs for the plotted point. These are often so large that it makes it difficult to judge whether the plot is within tolerance – these candidates sometimes lost the plotting marks because of this.

(iii) The line was generally well drawn. Some candidates attempted a line of best fit and lost the mark because the instruction given was ‘to join the points with a ruler’. The line must pass through the centre of each plotted point. Candidates often lose the line mark because it is not drawn with a ruler, doesn’t pass through the centre of each plotted point or the line is far too thick.

(b) Only the better candidates gained the mark for stating bacteria. Fungi was a less frequently seen answer.

(c) (i) Generally well answered. Error carried forward was allowed from an incorrectly plotted graph.

(ii) Very few candidates gained both marks. ‘Unable to breathe’ was a very commonly seen incorrect answer. Only the better candidates referred to the lack of oxygen and gained 1 mark. Very few candidates gained the second mark for referring to respiration being stopped.

6. This question was very poorly answered.

(a) The meaning of the term dominant allele was not known.

(b) (i) The genotype of the parents was not known even though they were informed that both parents were heterozygous and that the allele for no tail was B. Some candidates introduced a different letter here – other than B or b. Some candidates used two different letters of the alphabet to represent the alleles. Some used B, b and a third letter of the alphabet whilst others used X and Y. Those candidates who used letters other than B and b struggled to gain any marks even though there was a possibility of error carried forward to part (ii).

(ii) 1 mark was awarded for all 4 gametes being correct and a second mark for the mechanics of the cross. It was possible to pick up the mechanics mark even though the gametes were incorrect. This was not so if the candidates had used X and Y or if they had attempted some sort of dihybrid cross. Quite a few candidates correctly indicated that the gametes were produced by crossing Bb x Bb. However, many of these candidates failed to gain the mark for part (i) – this is very difficult to understand.

(iii) Not well answered or understood. It seems that many candidates struggled with the concept of 8 offspring being produced from a Punnett square which only showed 4 offspring. They didn’t seem to understand that the Punnett square showed the ratio of the possible genotypes in the offspring.
(c) Very poorly answered with very few candidates gaining a mark. Many crossed Manx x Manx even though they’d just done this cross in the Punnett square and found that some of the offspring don’t survive. Many crossed BB x BB even though they had been told that this genotype ‘is lethal …’ and therefore these cats don’t exist.

7. (a) Better candidates gained both marks

(b) (i) Some good answers were seen here. However, in order to gain marks answers needed to be clear with regard to which temperature was being referred to. For example, an answer which stated ‘as temperature increases sweat production increases’ failed to score as examiners were uncertain as to whether the candidate was referring to environmental temperature or body temperature. Some answers inferred that a rise in body temperature or sweat production influenced environmental temperature.

(ii) Better candidates gained this mark.

(c) Most candidates gained the mark for stating that sweat production increases in hot conditions and this sweat evaporates. However, many candidates were unsure as to how sweating reduces body temperature. Some think that it is because ‘sweat is a cold liquid’. Others knew that evaporation causes cooling or reduces body temperature and gained a second mark for this. The mark that most candidates failed to get was for stating that in order for evaporation to occur heat must be withdrawn from the body/skin/blood.

8. A very poorly attempted question.

(a) The term tropism was not well known. Much of this question was often left blank.

(b) (i) Better candidates attempted an answer based on gravity and gained a mark; either for referring to positive gravitropism or for stating that the young root grows towards gravity. Other candidates referred to phototropism or the young root growing towards or away from light – even though they are told in the stem of the question that the young bean seedling is kept in the dark.

(ii) Candidates did not appreciate that if the young root is rotated all parts of the root receive an equal stimulus of gravity in one complete revolution. Some thought that as the young root rotated, the direction of gravity changed.

9. Responses to this Quality of Written Communication question were generally disappointing. The question divided nicely into 3 parts and examiners expected the written responses to do this as well. Many responses were very muddled and lacked a paragraph structure. In fact most responses consisted of one long paragraph with few sentences and limited punctuation.

Examiners were looking for one example each of the advantages of using fertilizers, pesticides and battery methods and one example each of the disadvantages. Therefore, structurally, this should have been a relatively straightforward task for the candidates.
Most knew an advantage of using of fertilizers although they used the term yield often without clearly understanding what it meant. A disadvantage of fertilizer use was generally known particularly with regard to the pollution of water courses. However many candidates wrote lengthy accounts of eutrophication to the exclusion of everything else.

Pesticides were less well understood. A common response to the advantage of pesticide use was ‘they kill pests’. More was expected of the answer especially with regard to insects destroying crops and reducing yield or the removal of a pest, which is in competition with the crop for resources – answers lacked this detail. Most understood the disadvantage of pesticides with regard to bioaccumulation. However, many went to town on bioaccumulation to the exclusion of all else.

Examiners expected the candidates to name the product being produced in the battery – eg meat, eggs, milk. The advantage is, of course, more meat/eggs/milk being produced. The disadvantage of battery methods was poorly answered. ‘It’s not ethical’ was a common response but more is expected – why isn’t it considered to be ethical. For example, because the animals have limited space, some can’t lie down or can’t turn around or are not allowed outside. Disadvantages looked for included the increased chance of the spread of disease and the increased use of antibiotics. Answers such as ‘it’s cruel’ and ‘animals are abused’ were not accepted but reference to the poor quality of life of the animal was credited.
General Introduction

Performance on this paper was generally disappointing. In structured questions where prompts are available then candidates usually gain many of the marks. This includes questions where graphs have to be interpreted and simple calculations performed. However, responses are often of a low standard in those questions that require the recall of information.

Questions often require very careful reading and students should be encouraged to read each question more than once. Question 1, if carefully read, will inform the candidates that Manx cats with the genotype BB die at birth, i.e. they don't exist. If candidates had registered this fact, by careful reading the question, then they would have gained more marks in parts (b)(iii) and (c). Question 2 (b)(i) also needed careful reading as two different temperatures were being dealt with. If candidates failed to be clear about which temperature their answer referred to, they lost 2 marks.

In question 5 (b) candidates were asked to select a single food chain from the table. Many candidates failed to register this request and again lost 2 marks.

There are other examples on this paper where candidates failed to register the detail in a question and just seemed to skim over the information in an attempt to get quickly on with answering the questions. This ploy lost many marks.

Higher

1. (a) Very few candidates could explain the meaning of the term dominant allele. Most made reference to it being the stronger allele. Some candidates still confuse the terms gene and allele.

(b) (i) Responses to this question were often disappointing and pointed to the fact that many candidates were unsure of the meaning of the terms heterozygous and genotype. Some candidates introduced their own letters and these often confused responses for the rest of the question, eg Gb x Gb – and this is after the question stated that the dominant allele is B. Some candidates gave genotypes such as Bb x Mm – this sort of response, involving 4 alleles, is difficult to understand and renders the rest of the question impossible to mark.

(ii) 1 mark was awarded for all 4 gametes being correct and a second mark for the mechanics of the cross. It was possible to pick up the mechanics mark even though the gametes were incorrect. This was not so if the candidates had used X and Y or if they had attempted some sort of dihybrid cross. Many candidates correctly indicated that the gametes were produced by crossing Bb x Bb. But, often these candidates failed to give these genotypes as the answer to part (i) – this is very difficult to understand.
(iii) Better candidates gained this mark, but on the whole, this question was not well answered or understood. It seems that many candidates struggled with the concept of 8 offspring being produced from a Punnett square, which only showed 4 offspring. They didn’t seem to understand that the Punnett square showed the ratio of the possible genotypes in the offspring. Some candidates seemed to indicate the number of kittens that would die rather than the number surviving. The number surviving was required here and not the percentage surviving.

(c) Very poorly answered with very few candidates gaining a mark. Many crossed Manx x Manx even though they’d just carried out this cross in the Punnett square and found that some of the offspring don’t survive. Many crossed BB x BB even though they had been told that the BB genotype ‘is lethal …’ and therefore these cats don’t exist. A commonly seen error was to cross Manx x Manx and to indicate the genotypes as bb x Bb. These candidates did not appreciate that the only Manx genotype possible is Bb and that bb represents a cat with a normal length tail. Some candidates crossed bb x bb. This answer did not gain credit as the breeder was a breeder of Manx cats and this cross would not produce any Manx in the offspring.

2. (a) Generally well answered

(b) (i) Generally well answered. However, in order to gain marks answers needed to be clear with regard to which temperature was being referred to. For example, an answer which stated ‘as temperature increases sweat production increases’ failed to score as examiners were uncertain as to whether the candidate was referring to environmental temperature or body temperature.

(ii) Generally well answered.

(c) Most candidates gained 2 marks for stating that sweat evaporates and reduces body temperature. Few candidates gained the mark for stating that in order to evaporate sweat requires heat, which is withdrawn from the skin/blood/body.

3. A poorly answered question.

(a) The term tropism was not well known. Many candidates referred to the bending of a shoot or root rather than growth of the plant organ. A reference to a one-sided or unidirectional stimulus was very rarely seen.

(b) (i) Most candidates realized that gravity was involved in the response shown and many gained the mark for referring to positive gravitropism or for stating that the young root grows towards gravity. Other candidates referred to phototropism or the young root growing towards or away from light – even though they were told in the stem of the question that the young bean seedling is kept in the dark!

(ii) Very few gained this mark. Candidates did not appreciate that if the young root is rotated that all parts of the root receive an equal stimulus of gravity in one complete revolution. Some thought that as the young root rotated the direction of gravity changed.
4. This QWC question was generally well answered with many gaining marks in the middle or top band. The question divided nicely into 3 parts and examiners expected the written responses to do this as well. Many responses lacked a paragraph structure.

Examiners were looking for one example each of the advantages of using fertilizers, pesticides and battery methods and one example each of the disadvantages. Therefore, structurally, this should have been a relatively straightforward task for the students.

Most knew an advantage of the use of fertilizers although they used the term yield often without clearly understanding what it meant. A disadvantage of fertilizer use was generally known particularly with regard to the pollution of water courses. However some candidates wrote lengthy accounts of eutrophication to the exclusion of everything else.

Pesticides were less well understood. Pesticides here were considered to include fungicides, insecticides and herbicides. A common response to the advantage of pesticide use was ‘they kill pests’. More was expected of the answer especially with regard to insects destroying crops and reducing yield or to the removal of a pest, which is in competition with the crop for resources – some answers lacked this detail. Most understood the disadvantage of pesticides with regard to bioaccumulation. However, some candidates wrote far too much on this subject.

Examiners expected the candidates to name the product being produced in the battery – eg meat, eggs, milk. The advantage, of course, is more meat/eggs/milk being produced. The disadvantage of battery methods was poorly answered. ‘It’s not ethical’ was a common response but more was expected – why isn’t it considered to be ethical. For example, because the animals have limited space, some can’t lie down or can’t turn around or are not allowed outside. Disadvantages looked for, included the increased chance of the spread of disease and the increased use of antibiotics. Answers such as ‘it’s cruel’ and ‘animals are abused’ were not accepted, but reference to the poor quality of life of the animals was credited.

5. (a) (i) Most gained 1 mark for the correct method used in this calculation i.e. 
\[ (1353 + 2567 + 1941) \div 20000 \times 100 \]
Some candidates lost the second mark because they didn’t follow the instruction to calculate to two decimal places.

(ii) Most gained one mark here but often the responses lacked the detail required. Many stated that energy is lost in respiration but failed to state that this energy is in the form of heat. Again many stated that energy is lost as waste but examiners were looking for excretory waste/excretion/urine or egested waste/faeces.

(b) Many candidates struggled with this pyramid of biomass. It seems that the presence of three primary consumers in the table caused some confusion. In this question the candidates were asked to select a single food chain from the table. Many ignored this request and drew a pyramid with 5 tiers. This pyramid showed the three primary consumers consuming one another!, this pyramid failed to gain any marks.
Other candidates drew a three tiered pyramid with all three primary consumers in the middle tier. This tier was occasionally drawn wider that the base tier so that all the information about the primary consumers could be accommodated.

A correctly drawn pyramid labeled with the correct names of 3 organisms gained 1 mark. The addition of the masses of these organisms to the pyramid gained the second mark.

Upside-down pyramids failed to gain any marks.

6. (a) Generally well answered.
   (b) Many candidates struggled to give three creditworthy factors here. Some stated age and gender as factors even though they are told in the question that all the volunteers were 45 year old men. Others stated that the blood cholesterol levels of the volunteers should all be the same, even though the question is about the effect of differing blood cholesterol levels. Again, some stated that the volunteers should all be smokers or non-smokers even though the investigation is comparing smokers and non-smokers. Making a fair comparison in this investigation was a confusing concept for many candidates.
   (c) Some struggled to gain the mark here. Examiners were looking for reference to an increase of fat or cholesterol in the diet.

7. (a) Generally well answered
   (b) Only the better candidates referred to bacteria using the oxygen for respiration.
   (c) Very few candidates gained a mark here. In question 4 many candidates appreciated that fertilizers (nitrate) entering water courses could result in eutrophication. Those same candidates failed to link sewage with eutrophication in this question. Examiners were looking for two clear statements. Firstly, that bacteria change urea/protein in the sewage into nitrate and secondly, that this nitrate is used by algae for growth.
   (d) Well answered.

8. (a) Generally well answered. Far too many candidates answered liver. Pancrease failed to score.
   (b) Generally poorly answered. Few candidates understood that glucagon converts glycogen into glucose. Previous Principal Examiner reports have emphasized the fact the candidates must get the spelling of glycogen and glucagon correct.
   (c) Generally poorly answered. Few candidates referred to an increased dosage of insulin and a decreased dosage of glucagon. Most answers here referred to the app sending signals or notifications to the mobile phone.
(d)  (i)  Well answered.

(ii) Many candidates struggled to give creditworthy responses here. Examiners were looking for responses linked to the age of the man when the symptoms of diabetes were diagnosed. Candidates needed to state that **Type 2** diabetes, or late onset diabetes, is most commonly diagnosed in older people. Answers referring to the man being overweight failed to score because this could not be inferred from the information given in the question.

The second mark was awarded for stating that **Type 1** diabetes is diagnosed at birth or at a very early age in life. ‘**Type 1 diabetes is diagnosed early**’ was not enough to gain the mark.

Many candidates incorrectly stated that ‘**Type 1 diabetes has a genetic link and Type 2 hasn’t**’.

9.  (a)  Well answered.

(b)  The method of transfer of genes from one organism to another was poorly understood or not known. Answers needed to refer to the gene being cut out of the insect chromosome/DNA and inserted into the bacterial chromosome/DNA/plasmid.

(c)  Poorly answered. Very few candidates referred to adding the bacteria to the soil or to the fact that the (genetically modified) bacteria would reduce the concentration of pesticides in the soil at a faster rate.

10. Not many accounts in the high middle or top band were seen.

Most candidates realized that ‘a gene becoming altered’ was a mutation. These candidates then often went on and referred to genes being passed to future generations rather than the mutated gene being passed on.

Mutation resulting in variation in the population and the significance of variation was rarely seen.

Many candidates referred to the mutated gene providing an advantage or giving an increased survival value but they rarely stated what the advantage is.

Natural selection/survival of the fittest is often vaguely referred to in answers and usually indicated that these terms are not really understood, eg - ‘People with the mutation survive and those without it die. This is natural selection’.

Many candidates referred to genetic profiling but these candidates rarely referred to how this modern technology is used ie - to compare the DNA of 30 000 year old remains with the DNA of modern Tibetans.
General Introduction

Although the first five questions on the foundation tier were designed so that candidates of lower ability would show positive achievement, a significant number gained very few marks. A number of candidates produced answers that were illegible and they were unable to express themselves even at a basic level. Consequently, the question assessing the quality of written communication often provided answers that could not be given any credit. Often, candidates did not attempt this question which is worth 10% of the total marks.

However, it was pleasing to see some very high marks for answers written by many who were appropriately and correctly entered for the respective tiers. These candidates and their teachers are congratulated on their preparation and effort.

Specific Comments

1. The basic knowledge of cell structure was assessed and, in most cases, gave the opportunity of positive achievement to those who had revised and remembered the necessary facts. Many did not know the function of chlorophyll.

2. In (a) phonetic spelling was accepted together with bronchi for bronchus and wind pipe for trachea. The calculation of a mean value from the data was within the ability of most. But some did not understand or read "one decimal place". (b) (iii) discriminated the better candidates.

3. The basic structure of DNA was understood by the majority but part (b) proved to be too abstract for most, although credit was given for recognising that a code was involved without going any further in stating its function.

4. Phonetic spelling was accepted for oesophagus. Also "gullet" was given credit. A simple drawing was expected for (a)(ii) but a disappointingly large number did not even attempt it. Biological drawings seem to be outside the experience of most. Part (a)(iii) was understood and answered correctly by many but very few provided sensible answers to (b). Emulsification was often mistakenly inked with the breakdown of molecules. The better candidates mentioned emulsification of fats, linking it to an increase in surface area.

5. (a) It was very rare for candidates to recognise the significance of the control in this investigation. They seem to be able to use the word "control", but they do not understand what it means in particular contexts. Many different ways of expressing the meaning of the control were accepted in the mark scheme. In part (b), very few failed to score some marks for the graph, although some attempted to draw bar charts and these could not be given credit. The answers to parts (c) and (d) depended on whether the investigation was within the experience of the candidates and they could recall some basic facts concerning respiration. Unfortunately many could not do this.
6. This was the first question common to both tiers. It assessed the abilities to interpret graphical data and apply basic mathematics in the context of judging the dangers of smoking. The majority scored some marks but some appeared not to be able to read and understand the question. They often scored zero. In (b), most recognised tar as a carcinogen but many could not cope with the term emphysema and did not recall heart disease for part (c). Phonetic spelling was accepted.

7. In (a) the definition of diffusion was too difficult a concept for the majority. Very few used the term "molecules" in (b) (i) and hardly any understood and explained the digestion of starch to glucose molecules. Most chose the correct answer to (c).

8. The mathematical skills necessary for this question were beyond most of the entry. Perhaps the order of magnitude of the numbers was a hurdle. I saw no correct answers to (c) in the scripts sampled. No one understood the links between the decrease in the number of trees, the threat of extinction and the need to control the trade.

9. Nothing has changed since the assessment of the quality of written communication in the foundation tier was introduced when the present GCSE began. Linear memory combined with the need to write continuous prose are skills which are beyond the ability of those who are appropriately entered for the foundation tier. Even with the clues given in the question, higher marks are always very rare, medium marks are uncommon and lower marks are abundant. Many score zero or fail to attempt the question.
General Introduction

When examining samples from the Higher Tier paper it was obvious that some candidates should have been entered for the Foundation Tier. These certainly stood out as not being able to cope with the two questions which assessed the quality of written communication. Here, the QWC questions are worth 20% of the paper. Unfortunately many such candidates had a total score below 10 marks for the whole of the paper. These candidates showed little positive achievement in attempting those questions designed for higher tier candidates. Teachers would be well advised to note these points when entering candidates for the new style Welsh GCSE papers in the future, even though there will be only one question equivalent to QWC in the higher paper.

However, it was pleasing to see some very high marks for answers written by many who were appropriately and correctly entered for the respective tiers. These candidates and their teachers are congratulated on their preparation and effort.

Specific Comments

1. The difference between those who are appropriately entered for the foundation tier and those appropriately entered for the higher tier were obvious in the answers to this question. Most higher tier candidates scored 6 or 5 marks. There were some who mistakenly stated that bronchitis was caused by smoking.

2. Those who had seen this investigation being carried out scored high marks. Some mistakenly stated that a semi permeable membrane is needed for diffusion and did not gain the mark for (a). However, it was pleasing to see so many full marks for this question.

3. Those who could handle the maths involved scored high marks for (a) and (b). However, very few gained the mark for (c) as they did not link the decrease in trees with the danger of extinction and the need to control the mahogany trade.

4. It was pleasing to see so many gaining full marks. The required facts seemed to be known by the majority of candidates and many could express their answers in good continuous prose. Those who had been inappropriately entered for this tier stood out with the lowest marks or zero.

5. This was the first question to appear only in the higher tier. Very few lost marks for (a) and most coped with part (b). The better candidates recognised that glucose changed to starch in part (b) (ii) and therefore helped to explain the decrease in concentration of glucose between 20.00 hours and 04.00 hours.

6. Almost all who were appropriately entered for the higher tier scored full marks for this question which required very basic knowledge.
7. It was disappointing to see so many poor answers for (b) (ii) and (c). Very few recognised the importance of protection for (b) (ii). Most failed to link light or photosynthesis with seaweed on top of the stones in (c).

8. Some candidates found this too demanding because they did not understand that aerobic respiration occurred in syringe A. Even more failed to understand that the yeast lost water to the salt solution via osmosis in syringe B. The question discriminated the better candidates.

9. If candidates recalled and understood the principles of active transport they scored high marks in part (a). However, part (b) was designed to distinguish the very best candidates and required the recognition of the function of respiratory enzymes in the process of active transport. The most able candidates scored full marks.

10. The question succeeded in its intentions. It discriminated those at the top end of the ability range from the rest. Full credit was given where it was deserved, by candidates being articulate in integrating correct facts with sequential reasoning.