GCSE

Biology

BL3FP

Report on the Examination

4401

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Question 1 ***(Low Demand)***

(a) (i) This question was well answered and approximately two thirds of all students gained full credit for matching the part of the blood to its function.

(a) (ii) Again this question was well answered with two thirds of all students gaining credit. Where students did not gain credit, they often incorrectly stated sugar, minerals, hormones or salt. A high percentage of students did not attempt the question.

(b) (i) Over half of all students gained credit in this question. The most common incorrect answer was 'C'.

(b) (ii) Many students gained credit in this question. The most common incorrect answer was 'A'.

(b) (iii) Students could not identify another type of blood vessel that has valves. A common incorrect response was to state the heart. This question had a higher than normal percentage of students who did not attempt to answer.

(c) (i) The vast majority of students were able to describe how the stent keeps the artery open and maintains blood flow to the heart. Where students did make errors, they described the stent as squashing the blockage or fat. There were also a significant minority that described the stent as making the artery stronger.

(c) (ii) This question was generally well answered with approximately half gaining partial credit and a quarter of all students gaining the full two marks. Most of the answers that gained no marks referred to complications that could occur after the operation rather than during the operation, for example the stent not working or being rejected. There were also lots of students that didn't trust surgeons and suggested that they may put the stent in the wrong artery or get the stent stuck.

Question 2 ***(Low Demand)***

(a) The vast majority of students gained full marks on this question.

(b) (i) Approximately half of all students gained credit for identifying the sports drink that was closest to a 1:1 ratio. Where students gave an incorrect response it was most often for stating 'C' was the closest at a 2:7 ratio. Presumably this was due to 'C' having the first number closest to '1'.

(b) (ii) Nearly half of all students gained credit in this question, with most correct answers referring to sweat as the way the ions have been lost. A significant number incorrectly referred to the need to replace ions in order to provide energy for the athlete.

(b) (iii) This question was well answered and most students recognised that the sports drinks could cause the diabetic person's blood glucose levels to rise too high.

Question 3 ***(Low Demand)***

(a) Over three quarters of all students gained full credit in this question, and only a small percentage gained no mark. Where students did give incorrect responses it was for stating that water moves by active transport and that the membrane is non-permeable.

(b) (i) A quarter of all students did not gain any marks in this question despite being given two diagrams to compare. Where students did gain credit it was often for describing the smaller vacuole or smaller cytoplasm, and a small number of students highlighted the fact that the membrane had come away from the cell wall. A number of students attempted to describe the infolding of the cell wall or the cell becoming flaccid, but lack of clarity in their writing meant they often did not express this well enough to gain credit.

(b) (ii) It seems to examiners that many students are unfamiliar with these ideas and would benefit from being shown this type of demonstration. Many students suggested that the cell would be round and turgid but did not realise that the lack of cell wall would mean that the cell would in fact burst. A small minority suggested that the cell would shrivel up. A significant number of students described the red colour spreading through the water.

(c) Nearly all students gained one or two marks in this question. Most students identified the villi as giving a large surface area, but the number of blood capillaries was not identified as often.

Question 4 ***(Low and Standard Demand)***

(a) (i) A number of students did not identify xylem as the vessel that transports water through a plant, identifying it instead as phloem.

(a) (ii) As in part (a)(i) a similar number of students did not correctly identify phloem, but instead stated xylem as carrying dissolved sugars through a plant.

(a) (iii) This question was answered much better, with over three quarters gaining the mark for transpiration.

(a) (iv) A number of students struggled to identify the stomata in this question.

(b) (i) Approximately half of all students gained credit in this question, often for stating that the cotton wool would hold the plant in position or stop water being lost. However, a significant number of students incorrectly identified the role of the cotton wool in this investigation as stopping water getting in or suggested it regulated the temperature because it is an insulator.

(b) (ii) Students struggled to appreciate the nature of the investigation and therefore identify how using the same size of plant shoot would make the investigation a fair test. A significant number of students talked about the reliability of the investigation.

(b) (iii) Most students correctly calculated the mass of water lost in flask D.

(b) (iv) Most students wrote a conclusion which was creditworthy and approximately three quarters of all students gained the mark. No marks were awarded for several students who had only

quoted data from the table but had not gone on to describe or explain a relationship between temperature and water loss.

(b) (v) Again over three quarters of all students wrote a correct conclusion. Students who did not gain credit had on many occasions only described temperature or stated the fan would decrease water loss as it would make the temperature decrease by cooling it down.

(c) (i) Many students incorrectly identified 1.9g as the answer in this question as they had chosen the same answer as 20°C with no fan from Table 3.

(c) (ii) Most students gained one mark for the second marking point. Very few of these mentioned humidity but explained that the bag would prevent water vapour from leaving. Only a couple of students had made the connection between the bag and air flow. Some students got it completely wrong and linked the bag to the presence of microorganisms and oxygen.

A significant number of students gave their reason as picking the data from Table 3 that matched to 20°C with no fan, without appreciating that the plastic bag would have an additional effect on water loss.

Question 5 *(Low Demand)*

(a) (i) This question was answered very well. Where incorrect answers were seen it was often for descriptions of enzyme activity and optimum temperatures.

(a) (ii) The vast majority of students answered this question very well. However, fat, hormones and carbohydrates were also seen fairly often.

(a) (iii) Many students gained credit in this question. Students that had attempted the question but did not score any marks were often stating that the selected substance moves into the water which is given in the question stem, and did not link this to size or concentration gradient.

(a) (iv) About half of all students gained credit for identifying glucose. Students identified oxygen almost as frequently as glucose and a significant number identified insulin.

(b) Over three quarters of all students gained one or two marks in this question. Students lost marks for simply quoting information from the stem without expanding on their explanation, i.e. stating that the process takes 45 minutes but not explaining that the advantage is that it takes less time. Some had also said that it can be done at home but failed to state that this is instead of visiting the hospital.

Question 6 *(Standard Demand)*

(a) (i) A number of students were unable to correctly calculate the percentage of fish and many different incorrect answers were seen. It appeared that many students did not have access to a calculator during the exam.

(a) (ii) Approximately half of students gained two or more marks on this question. Where students gained credit it was often for correctly identifying the increase and decrease in the pattern. Students that went on to give reasons for the increase and decrease often mixed the reasons up, with a significant number suggesting the decrease was due to the introduction

of quotas and the increase was also due to the introduction of quotas. A number of students compared 2002 with 2010, stating a decrease and did not mention the fluctuation.

(a) (iii) Almost three quarters of all students did not gain a mark in this question. When attempting to describe legislation/rules as a reason, students were giving very confused accounts.

(b) Many students gained credit in this question, however many students attempted to describe net regulation and confused net and mesh size, and therefore did not gain the mark.

(c) Over a quarter of all students gained three or four marks on this question. Students generally understood the idea of restricted movement and many could link this to a saving of energy. Some students mentioned that food could be controlled but not many expressed the idea that they could be given more or better quality food.

There were a number of references to the fish being protected from predators, without taking it a stage further to gain the less movement mark e.g. as they don't need to escape.

Question 7 *(Standard Demand)*

Many students gave well-structured answers expressing ideas clearly and consequently gained credit in Level 2 or 3. Weaker responses were often characterised by poor structure, repetition of the same idea and incorrect reading of the question, for example only giving one reason.

The least common reasons for deforestation were burning as fuel and biofuel. Most common was farming and paper production. Common errors were to only give one reason or to give a number of reasons all of which were the 'land' marking point, e.g. farms, food, cattle, rice cultivation, towns, homes.

Generally students were able to express the idea of trees taking in carbon dioxide by photosynthesis, hence less trees meant more carbon dioxide in the atmosphere. This was the most common correct idea. Weaker students referred to respiration instead of photosynthesis. Methane production by cows and rice were also commonly seen correct points.

The best answers often gave a number of reasons for deforestation, coupled with several correct explanations for the increase of both carbon dioxide and methane.

Mark Ranges and Award of Grades

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

Converting Marks into UMS marks

Convert raw marks into Uniform Mark Scale (UMS) marks by using the link below.

UMS conversion calculator