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Examiners' Report Summer 2026

Pearson Edexcel Advanced Subsidiary In Biology A Salters Nuffield

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Introduction

This paper tested the knowledge, understanding and application of material from the topics 'Lifestyle, health and risk' and 'Genes and health'.

The range of questions provided ample opportunity for candidates to demonstrate their grasp of these topics and apply their knowledge to novel contexts.

The questions on this paper yielded a wide range of responses and some very good answers were seen. The paper appears to have worked very well with all questions achieving the full spread of marks.

There were some straightforward questions that yielded high marks across the ability range and some more challenging questions that discriminated well. The utilisation of qualitative and quantitative data showed an improvement from past exam series.

There was a significant improvement in the quality of responses to the question requiring an investigation to be devised.

As previously, questions that required recall of knowledge were generally well answered, as were the majority of the calculation questions.

Question 01(b)

This question asked candidates to state and justify what conclusion could be made about the risk of coronary heart disease for the given individual.

Most knew that the individual had a higher risk of CHD and could link it to a waist: hip ratio of greater than 0.9. Some linked it to drinking greater than 14 units of alcohol a week. Candidates that did not justify their conclusion did not achieve a mark.

However, those who did not gain the mark often failed to specify the type of risk (e.g. high or increased risk), or did not justify why the risk was increased.

Question 01(c)

This question asked candidates to describe two other tests that could be carried out to assess the risk of coronary heart disease for the given individual.

Most described testing the blood cholesterol levels and the blood pressure. Some missed a mark by describing doing a heart test to measure heart rate. A generic genetic test was not credited without stating that the test was to check for susceptibility of CHD.

Some references to aspects which are not not tests were seen, for example surveys or questionnaires relating to lifestyle factors (e.g. diet or smoking) were seen.

Question 02(a)(iii)

Although many candidates knew the name of the enzyme involved, some were confused over the location.

Question 02(b)(i)

Most candidates were able to complete the sequence of amino acids correctly to score the mark.

Question 02(b)(ii)

This question asks candidates to explain how a mutation in the codon UUA could result in a shortened amino acid sequence.

Most correctly identified that UAA, UAG or UGA are stop codons. Some extended this correctly to explain that translation would stop. However, a common misconception was that transcription would stop, which was not creditworthy.

Candidates that simply stated the amino acid sequence would be shorter did not gain credit as this was in the stem of the question.

Question 03(a)

This question asked candidates to explain why tubifex worms do not need a specialised gas exchange system.

Candidates seemed well prepared to answer this type of question, with many scoring three marks.

Most knew that the tubifex worm had a large surface area : volume ratio and short diffusion distance and were able to gain MP1 and MP4. Many also explained that the tubifex worm would have a lower metabolic rate.

Some candidates did not gain marks where they incorrectly stated that the organism had a small surface area to volume ratio.

Question 03(b)

This question asks students to explain how the mammalian lung is adapted for rapid gaseous exchange.

Most students clearly understood Fick's law and looked to address each element in their answers. Many candidates made reference to large surface area of alveoli or that numerous alveoli provided a large surface area. Similarly many students explained how concentration gradients are maintained with reference to either the blood supply or ventilation.

A significant number of students failed to refer to both the alveolar wall and capillary wall being one cell thick, limiting access to higher marks.

Question 04(a)(i)

Some candidates confused the left and the right hand sides of the heart and selected the wrong blood vessel.

Question 04(a)(ii)

Most candidates could draw a cross section of a blood vessel.

Most could correctly identify the lumen. However, there was confusion between the endothelium and collagen layer, with these often reversed. Some did not gain marks as they failed to identify both muscle and elastic tissue.

A significant number of candidates omitted the endothelium.

Question 04(a)(iii)

This question asked candidates to describe how the heart moves blood from vessel Y to vessel X.

Candidates seemed well practiced in describing the movement of blood through the heart. Most knew that atrial systole would force blood into the ventricle and that ventricular systole would force blood through the semi lunar valves and into the aorta.

Those scoring lower marks often did not refer to atrial systole or ventricular systole, or did not clearly describe contraction of cardiac muscle.

Question 04(b)(i)

This question asked candidates to plot the data for the sea lion on the graph. It is important that candidates look carefully for the marks indicated on the right in question papers, as not all questions have an answer line. A small number of candidates failed to plot the data on the graph. Some plotted the data for body mass on the heart mass axis. Most gained the mark for plotting the data correctly.

Question 04(b)(ii)

This question asked candidates to give one conclusion that could be drawn from the data shown in the graph. Most candidates could describe the positive correlation between the mean body mass and mean heart mass, however some tried to give explanations or did not use the axis variables in their conclusion.

Question 04(b)(iii)

This question asks candidates to calculate the mass of the heart of the dog as a percentage of its body mass. Most were able to perform this calculation correctly. However there were a few that did not read the correct data from the graph, or used the sea lion data instead. Some used an incorrect conversion of kilograms to grams.

Question 05(a)

This question asked candidate to describe how soluble fibrinogen is converted into insoluble fibrin.

Most understood the role of thrombin in the conversion of fibrinogen to fibrin.

Those who did not score full marks failed to describe the conversion of prothrombin to thrombin.

Question 05(b)

This question asked candidates to explain the benefit and risks of using platelet inhibitors to treat people who have CVD.

As the question asked them to explain both benefits and risks, full marks could not be awarded if they did not do so.

Most explained that the platelet inhibitors would prevent blood clot formation, but few extended that explanation to consider the preventing of the heart attack.

Some students referred to reducing CVD risk, but they were told that the people had CVD in the question. Most candidates were able to identify a correct risk, with excessive bleeding being the most common.

Question 05(c)(i)

This question asked candidates to give two conclusions for the investigation on the effect of temperature and storage time on the vitamin C concentration of grape juice. Candidates needed to consider both storage time and temperature effects on the concentration of vitamin C, with most doing so.

A significant minority did not refer to the dependent variable of vitamin C concentration in their conclusions.

However, many were able to analyse the provided data carefully and were able to give two correct conclusions.

Question 05(c)(ii)

This question asked candidates to calculate the percentage difference in the vitamin C concentration after 20 hours of storage at 20°C and 40°C. They were provided with an equation to use with the values read from the graph.

It is important that candidates read the information in the question carefully, because some did not give their answer to two significant figures. Some incorrect rounding of data to two significant figures was also seen. Care must be taken when reading values from graphs. Many were able to use the provided equation, correct data from the graph in order to give a calculated answer to two significant figures.

Question 05(d)

This question asked candidates to calculate the mass of vitamin C in one cm3 of the pineapple juice described in the question. Many found this calculation challenging, with some unable to correctly calculate the mass of vitamin C in mg.

Similarly with the previous calculation, some were not able to perform a unit conversion correctly.

Question 06(a)

Candidates were asked to compare and contrast the structure of the catalase molecule shown in the diagram and a haemoglobin molecule.

It was pleasing to see most responses showed good examination technique, writing comparative statements in their answers.

A full range of marks was seen. Credit was given for structure comparisons, while irrelevant references to function were ignored.

Candidates often found it easier to identify similarities between the two molecules, with mp2 and mp3 being the most common. The most common difference was the comparison of the type of polypeptides in the two molecules, although comparisons relating to active sites were also seen.

Question 06(b)

This question asked candidates to draw a line on the graph to show what happens to the activation energy when catalse is added to hydrogen peroxide. Similar to the previous drawing question on this paper, some failed to answer the question.

Many candidates gained one mark. Those who did not often drew a dotted line or incorrect energy level rather than a correctly shaped activation energy curve.

Question 06(c)(i)

This question asked candidates to state and justify a modification to the apparatus which would give a more accurate measure of the activity of catalase.

Most correctly identified appropriate apparatus such as a measuring cylinder or gas syringe. Some also gained credit for recognising oxygen dissolving in water.

However, references to controlling temperature with a water bath or increasing accuracy with a gas syringe were not creditworthy in this context.

Question 06(c)(ii)

This question asked candidates to devise an investigation to show the effect of hydrogen peroxide concentration on the initial rate of the reaction given in the question.

This question proved to be a very good differentiator and a full range of marks was awarded. Most were able to identify variables that should be controlled in this investigation.

Candidates who did not achieve full marks often failed to include five different concentrations, had an incorrect independent variable,did not mention repeats or calculation of a mean. Some described how rate would be calculated, not initial rate.

Many knew that a tangent should be drawn, but did not recognise that this should be done at the start of the line on the graph to calculate the initial rate of reaction.

Question 07(a)(i)

This question asked candidates to draw and label a glycolipid and a glycoprotein onto this diagram. Some were able to draw both a glycolipid and glycoprotein correctly, however some candidates were only able to draw one. Candidates were more likely to be able to draw the glycoprotein correctly.

Question 07(a)(ii)

The majority of candidates knew that molecule X was cholesterol.

Question 07(a)(iii)

Candidates were asked to state one effect molecule X has on the cell membrane. A wide range of valid responses were seen. A few candidates suggested that cholesterol increases membrane permeability, which was not credited.

Question 07(b)(i)

This question provided candidates with a diagram showing the structure of a monoglyceride. Candidates were asked to compare and contrast the structure of this monoglyceride with an unsaturated phospholipid molecule. Candidates were able to give comparative statements and often set their work out with clear side headings for similarities and differences.

The most common point that was made was that both molecules contained fatty acids and glycerol or that the phospholipid had a phosphate group whereas the monoglyceride does not. Many took careful note of the emboldened word unsaturated in the question, and were able to compare the presence or absence of C=C bonds in the fatty acids of the molecules. More detailed responses considered that they both had ester bonds, or compared the number of ester bonds / fatty acid chains.

Question 07(b)(ii)

Candidates were provided with a graph showing the results of an investigation into the effect of extracellular concentration of monoglycerides and monosaccharides on their rates of entering cells. Candidates needed to analyse this information carefully, and use their knowledge regarding these molecules to help them explain the results of the investigation.

A significant number did not take careful note of the command word, describing the data with no accompanying explanation.

Some candidates understood that monoglycerides would diffuse through the phospholipid bilayer, with higher level responses being able to explain this with reference to monoglyceride being nonpolar. Some were able to explain that because monosaccharides were polar or large, they required protein channels /

carrier proteins to transport them into the cell via either facilitated diffusion or active transport. Higher scoring responses extended their explanations to consider that the rate that monosaccharides entered the cells were limited by the availability of these proteins.

Question 08(a)(i)

This question provided candidates with information regarding the inheritance of brachydactyly in a family. Candidates were asked to evaluate a student's conclusion that individuals one and two were homozygous recessive for brachydactyly.

Most correctly identified that the conclusion was incorrect and supported this with appropriate reasoning.

Question 08(a)(ii)

Candidates were asked to discuss the ethical issues related to the use of a named genetic screening test that individual 6 could use to find out if her child would have a genetic condition. As individual 6 plans to have the test when she is pregnant, responses giving answers such as PGD were incorrect.

Most were able to identify either CVS or amniocentesis. Many responses identified that these tests would increase the risk of miscarriage, but fewer responses could discuss an appropriate second ethical issue. Designer babies was not a creditworthy ethical issue.

Question 08(b)

Candidates were asked to complete the Punnett square to show how 100% of offspring would have pink flowers, if one of the parent plants had white flowers.

Candidates were provided with genotypes in the stem of the question, and it was expected that they used the relevant alleles in the format given.

It was clear that the majority understood incomplete dominance, with nearly all Punnett squares completed correctly. However, some lost marks due to incorrect parental genotypes or using different alleles to those stated in the question.

Question 08(c)(ii)

This question required candidates to analyse the given data, both qualitative and quantitative to explain which of the three treatments would be most beneficial for a young child with cystic fibrosis.

It was pleasing to see that nearly all candidates wrote lengthy answers to this question.

It is important to take note of the command word, with some responses just describing the graph or the information in the table.

A significant number did not identify the most beneficial option, limiting their responses to level one. Where candidates identified treatment B as being the most beneficial, the depth of their explanations determined the awarding of either level 2 or level 3.

The most detailed responses applied their knowledge of enzyme action, effects of cystic fibrosis and the role of certain molecules in the body to explain why both enzyme supplements and a diet higher in the 3 named molecules would be the most beneficial.

Paper summary

Based on their performance on this paper, students are offered the following advice:

- Read the whole question carefully, including the introduction, to help relate your answer to the context. You should take into account the command words as well as all of the context given. Answers which do not match the command words or do not relate to the given context will not gain high marks.
- Ensure you are familiar with the mathematical skills listed in the specification, especially unit conversion and significant figures.
- Ensure you use the correct technical names and terms in your answers.
- Apply your practical skill knowledge to given contexts.

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