Pearson

Examiners' Report
Principal Examiner Feedback

January 2017

Pearson Edexcel
International Advanced Subsidiary Level
in Biology (WBI06)
Paper 01 Practical, Invest Skills

edexcel

https://xtremepape.rs/

Edexcel and BTEC Qualifications

Edexcel and BTEC qualifications are awarded by Pearson, the UK's largest awarding body. We provide a wide range of qualifications including academic, vocational, occupational and specific programmes for employers. For further information visit our qualifications websites at www.edexcel.com or www.btec.co.uk. Alternatively, you can get in touch with us using the details on our contact us page at www.edexcel.com/contactus.

Pearson: helping people progress, everywhere

Pearson aspires to be the world's leading learning company. Our aim is to help everyone progress in their lives through education. We believe in every kind of learning, for all kinds of people, wherever they are in the world. We've been involved in education for over 150 years, and by working across 70 countries, in 100 languages, we have built an international reputation for our commitment to high standards and raising achievement through innovation in education. Find out more about how we can help you and your students at: www.pearson.com/uk

January 2017
Publications Code WBI06_01_1701_ER
All the material in this publication is copyright
© Pearson Education Ltd 2017

https://xtremepape.rs/

Overall Impression

In general students showed a good knowledge of the core practical methods. Students clearly identified variables that needed to be controlled but their descriptions as to how the control could be achieved lacked the precision required for this examination. Students were often competent at interpreting the results of the statistical test. Most students did try to tailor their answers to the given context of each question.

https://xtremepape.rs/

Question 1

1a

This question was based on the membrane permeability core practical. Many answers indicated that students had carried out this investigation. Students often referred to controlling temperature but the explanations as to how this could be done were often missing. Some students did not make it clear that measurements for each concentration should be repeated to find the mean.

1bi

Nearly all the students correctly identified the concentration of detergent as the independent variable.

1bii

Nearly all the students correctly identified two variables other than the independent variable.

1biii

Students were then asked to choose one of the variables they had identified and explain how it could be controlled. Many students selected temperature but suggested an incubator rather than a water bath. However most students described why the results would not be valid in terms of pigment release or membrane permeability. Some students stated the results would not be valid without further qualification, this was enough to gain the mark.

1c

Students were asked to suggest why detergents affect the permeability of membranes. Many students failed to refer to phospholipids being disrupted or to diffusion as process by which pigments would pass across the membrane.

https://xtremepape.rs/

Question 2

The context of this question was the action of two insecticides on the larvae of an insect that can reduce crop production.

2a

The majority of students wrote a clear null hypothesis to gain both marks.

2b

Most students presented the data in a clear table. In some cases the full headings from the information given were not included. A small number of students made errors in calculating the means.

2c

Most students presented clear graphs with both axes fully labelled. The plotting was usually easily checked as a sensible scale was chosen in most cases. If a student had calculated incorrect means in part b they could still be awarded the plotting mark here as an error carried forward. Only a very small number of students failed to include range bars on their graphs.

2d

Most students correctly identified the critical value of 37 from the table and correctly compared this with the calculated value of U. Only a small number of students made the mistake of accepting the null hypothesis and suggesting there was no significant difference between the action of the two insecticides.

2e

Most students identified the small sample size and high variability of the results as reasons why the investigation might not be valid. Only a small number of students suggested the difficulty of deciding if the larvae were alive or dead.

https://xtremepape.rs/

Question 3
This question was centred around the action of protease enzymes on casein.

3a
Students were asked to suggest why the liquid became clear. Students often referred to the protease breaking down the protein but they sometimes failed to identify peptide bonds being broken or the production of amino acids. However most of the students that realised amino acids would be produced also stated that amino acids are soluble.

3bi
Students were asked to describe preliminary work to ensure a proposed method would work. The students that had engaged with the context of the investigation gave good descriptions that covered at least three of the points on the mark scheme. Some answers were only given credit for the idea of practising the method to see if it works.

3bii
Nearly all the students described a method of their investigation in a logical sequence. Most answers were focused around finding the time taken for mixtures to go clear. All the marking points were seen in at least some answers. Incubating the solutions separately until they had all reached to appropriate temperature was rarely suggested. In some cases the statement about repetition was not clearly stated for each leaf age or the data used to calculate a mean.

3biii
Students were asked to explain how the data from their investigation would be recorded presented and analysed. Most candidates either described or drew tables with headings and graphs with labelled axes. Only a small number of students suggested a statistical test that was not a suitable correlation test.

3biv
The students that considered the limitations for *their proposed* method usually identified that finding the age of the leaves and judging the end point for the reaction would be significant limitations.

https://xtremepape.rs/

Advice for students:

- Read the whole question before you start to answer, and check that your answer covers everything the question asks for.
- Make sure your answer relates to the specific context of the question.
- When studying Core Practicals, think about what the techniques might be used for and the types of scientific question they might help to answer.
- Carry out every Core Practical for yourself, so you understand how it works and any difficulties that might be encountered.
- If you are given the procedure for a practical technique, put yourself in the shoes of the person writing the procedure: how would they have worked out the details (such as volumes, concentrations and times)? They will have used preliminary practical work.
- Consider the strengths and limitations of each Core Practical technique.
- Practice writing null hypotheses for experiments you carry out, even if you will not necessarily be applying a statistical test.

https://xtremepape.rs/

Pearson Education Limited. Registered company number 872828
with its registered office at 80 Strand, London, WC2R 0RL, United Kingdom

https://xtremepape.rs/