

APOLLO

# Defence against disease

## SL

Biology

First assessment 2025

9 questions | mark schemes

## Mark-scheme answers

Biology SL | Paper 1A | May 2025 TZ1 | Q18 | 1 marks

18.          A  

Biology SL | Paper 1A | May 2025 TZ2 | Q18 | 1 marks

18.          C  

Biology SL | Paper 1A | May 2025 TZ3 | Q18 | 1 marks

18.          C  

Biology SL | Paper 1A | May 2025 TZ3 | Q19 | 1 marks

19.          B  

Biology SL | Paper 1A | Nov 2025 TZ1 | Q17 | 1 marks

17.          B  

Biology SL | Paper 1A | Nov 2025 TZ1 | Q18 | 1 marks

18.          A  

Biology SL | Paper 1A | Nov 2025 TZ3 | Q16 | 1 marks

16.          B

|    |   |                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                |          |
|----|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 1. | a | <p>a. on day 7 there is reduced (total surface) area of lesional skin;</p> <p>b. reduced (total surface) area of lesional skin with skin plaques;</p> <p>c. lesional skin is reducing on the arms;</p>                                                                                                                                 | <p>Accept converse for Day 0 throughout.</p> <p>Accept 'bigger/smaller lesions/plaques'.</p> <p>Accept Skin free of lesion increase as vice versa of mark point a.</p> <p>Accept mention of % or proportions as long as they are linked e.g. is bigger is smaller etc.</p> <p>Do <b>not</b> accept 'fewer lesion/plaques'.</p> | 2<br>max |
| 1. | b | <p>a. measure the lesional area (and the total area of the back);</p> <p>b. find/calculate the percentage/proportion of the back affected (by lesions);</p> <p>c. calculate/compare the (percentage) change between Day 0 and Day 7;</p> <p>d. use a (statistical) test to assess if the difference between groups is significant;</p> | <p>Can accept references to changes in unaffected area as a method (mark points a, b and c).</p> <p>b. is about calculations of coverage of affected areas.</p> <p>c. is about calculations comparing affected area between day 0/at start/before and day 7/at the end/after.</p>                                              | 2<br>max |

| Question |   | Answers                                                                                                                                            | Notes                                                                                                                                                                                                                                                                                                                 | Total    |
|----------|---|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 1.       | c | <p>a. low reliability as only five/very few males/small sample size studied;</p> <p>b. low reliability as no control/no men without treatment;</p> | <p>Do not accept 'low' unqualified but must be included for a mark/s.</p> <p>Do not accept reference to not enough data without mentioning what data is being referred to.</p> <p>Ignore references to <b>validity</b>, e.g. 'only males studied' / 'only the area of skin on the back studied' or 'only 7 days'.</p> | 1<br>max |
| 1.       | d | 3.75 (%);                                                                                                                                          | Accept range between 3.7 and 3.8                                                                                                                                                                                                                                                                                      | 1        |
| 1.       | e | 0.8 (%);                                                                                                                                           | <p>Allow values between 0.7 and 0.9 (%) inclusive.</p> <p>Can accept negative values.</p>                                                                                                                                                                                                                             | 1        |

| Question |   | Answers                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Notes                                                                                                                                                     | Total |
|----------|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| 1.       | f | <p>(as a control) to compare the amount of expression of genes in normal and lesional skin</p> <p><b>OR</b></p> <p>(as a control) to compare the amount of expression of WMT5A and IL24 in normal and lesional skin</p> <p><b>OR</b></p> <p>(as a control) to compare the %/number/amount of fibroblasts (expressing the genes) in normal and lesional skin</p> <p><b>OR</b></p> <p>to make sure that the drug doesn't harm/have side effects in normal skin;</p> | <p><i>Do not accept 'as a control' unqualified nor reference just to lesions or just to treatment / comparisons is between unaffected and lesions</i></p> | 1     |

| Question |   | Answers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Notes                                                                                                                                                 | Total    |
|----------|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 1.       | g | <p>a. decrease in (mean) fibroblast (that over express the gene) percentages from Day 0 to Day 7;</p> <p>b. treatment does not eliminate/stop over expression (of genes/WNT5a and IL24)</p> <p><b>OR</b></p> <p>unaffected tissue does not over express (genes/WNT5a and IL24);</p> <p>c. probability that the difference between (mean) fibroblast percentages between lesional tissue on Day 0 and Day 7 occurred by chance is less than 0.05/5%</p> <p><b>OR</b></p> <p>probability that the difference between (mean) fibroblast percentages between lesional and non-lesional tissue on Day 0 occurred by chance is less than 0.001/0.1%</p> <p><b>OR</b></p> <p>the difference between (mean) fibroblast percentages of lesional tissue (on day 0 to Day 7) is <u>statistically</u> significant;</p> | <p><i>Do not accept decrease in lesions or decrease in fibroblasts alone (must refer to percentage/amount).</i></p> <p><i>For b. accept OWTTE</i></p> | 2<br>max |

| Question | Answers | Notes | Total |
|----------|---------|-------|-------|
|----------|---------|-------|-------|

## Mark-scheme answers

Biology SL | Paper 1A | Specimen 2025 | Q20 | 1 marks

20.          B