

APOLLO

# Reproduction SL

Biology

First assessment 2025

7 questions | mark schemes

## Mark-scheme answers

Biology SL | Paper 1A | May 2025 TZ1 | Q19 | 1 marks

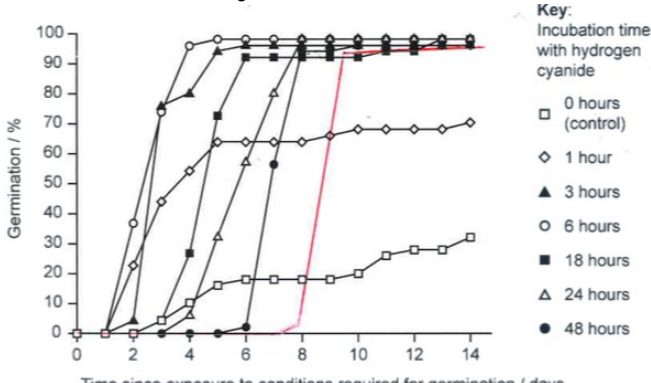
19.          A  

Biology SL | Paper 1A | May 2025 TZ2 | Q19 | 1 marks

19.          B  

Biology SL | Paper 1A | May 2025 TZ3 | Q20 | 1 marks

20.          A

|    |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                 |   |
|----|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---|
| 1. | a | 20(%);                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | accept 19 - 22% | 1 |
| 1. | b | <p>a. germination starts between 6-8 days;<br/>b. reaches between 90-95% germination;</p>  <p>Key:<br/>Incubation time with hydrogen cyanide</p> <ul style="list-style-type: none"> <li>□ 0 hours (control)</li> <li>◇ 1 hour</li> <li>▲ 3 hours</li> <li>○ 6 hours</li> <li>■ 18 hours</li> <li>△ 24 hours</li> <li>● 48 hours</li> </ul> <p>Used with permission of Oxford University Press - Journals, from <i>Journal of Experimental Botany</i>, Society for Experimental Biology (Great Britain), Federation of European Societies of Plant Physiology, Vol. 59, Issue 8, 2008. Permission conveyed through Copyright Clearance Center, Inc.</p> |                 | 2 |

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2225 - 6012M

| Question | Answers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Notes | Total |
|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|
| 1. c     | <p><b>Similarities:</b></p> <p>a. both showed an increase in germination<br/><b>OR</b><br/>at 3 days the seeds incubated for 18 hours have the same percentage germination as the control<br/><b>OR</b><br/>both seeds incubated for 18 hours, and the control seeds did not germinate during the first 2 days;</p> <p><b>Differences:</b></p> <p>b. a higher percentage of seeds germinated when incubated 18 hours than the control seeds<br/><b>OR</b><br/>percentage of germinated seeds incubated for 18 hours shows a steeper increase than the control seeds (between 3 and 5 days)<br/><b>OR</b><br/>seeds incubated for 18 hours level off but percentage of germinated seeds in control continues to increase gradually;</p> |       | 2     |

| Question |   | Answers                                                                                                                                                                                                                                                                                 | Notes | Total |
|----------|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|
| 1.       | d | <p>longer (more than 6) hours incubation (with cyanide) causes a delay in days to begin germination</p> <p><b>OR</b></p> <p>there is a lag in germination rate at the beginning of each cyanide line (with 6 or more hours) that is not present in the control line / <i>OWTTE</i>;</p> |       | 1     |

| Question |   | Answers                                                                                                                                                                                                                                                                                                                                                       | Notes                                                                         | Total |
|----------|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|-------|
| 1.       | e | <p>a. from the graph, 6 hours produced the fastest germination;</p> <p>b. no incubation times between 6 and 18/3 and 6 hours were tested (so cannot say what the optimum incubation time is)</p> <p><b>OR</b></p> <p>the hypothesis is not supported because seeds incubated with different hours eventually reach 100%/close to 100% germination;</p>        |                                                                               | 2     |
| 1.       | f | 0.5 nl h <sup>-1</sup> g <sup>-1</sup> ;                                                                                                                                                                                                                                                                                                                      | <p><i>Units required</i></p> <p><i>Accept answers between 0.4 and 0.5</i></p> | 1     |
| 1.       | g | 135;                                                                                                                                                                                                                                                                                                                                                          | <i>Accept answers from 131 and 137.</i>                                       | 1     |
| 1.       | h | <p><i>Similarity</i></p> <p>a. both D and ND (seed embryos) produced more ethylene with incubation in cyanide;</p> <p><i>Difference</i></p> <p>b. ND (seed embryos) produced more total ethylene than D</p> <p><b>OR</b></p> <p>D (seed embryos) show a bigger proportional increase than ND seeds</p> <p><b>OR</b></p> <p>D has a bigger spread of data;</p> |                                                                               | 2     |

| Question |   |  | Answers                                                                                                         | Notes | Total |
|----------|---|--|-----------------------------------------------------------------------------------------------------------------|-------|-------|
| 2        | a |  | mutation<br><b>OR</b><br>sexual reproduction/meiosis/random fertilization/crossing over/independent assortment; |       | 1     |

## Mark-scheme answers

Biology SL | Paper 1A | Nov 2025 TZ1 | Q19 | 1 marks

19.          D  

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

19.          D  

Biology SL | Paper 1A | Specimen 2025 | Q22 | 1 marks

22.          A