**Answers practical test “How big are cells?”**

1. **SIZE OF ONION CELLS**
   1. Somewhere between 200 – 400 µm **1p**
   2. Somewhere between 50 – 100 µm **1p**
   3. Volume is length \* width \* depth. **2p**  
      1 cubic micrometer (µm3) is 0,001 picoliter (1pL)  
      Example:   
      Volume = 300 \* 75 \* 75 = 1.7.106 µm3 = 1700 pL
   4. Conclusion: onion cell is 1700x bigger. **1p**  
      Possible explanations: **1p**  
      Onion cells are really big (which is true).  
      Error in measuring  
      Theory is not correct.
2. **SIZE OF NUCLEI**
   1. Approximately 20 µm **1p**
   2. Somewhere between 5 and 20 mm **1p**
   3. Magnification = 10.10-3 / 20.10-6 = 0,20.103 = 200 **2p**
   4. Magnification microscope is 100x or 400x   
      Conclusion: cells were drawn with a larger (or smaller) **1p**  
      magnification.
3. **ELODEA CELLS AND BUCCAL TISSUE**
   1. Somewhere between 200 – 350 µm **1p**
   2. Somewhere between 50 - 100 µm **1p**
   3. Conclusion: plant cells are bigger than animal (human) cells. **1p**  
      Explanation: **1p**Plant cells have more organelles.  
      Plant cells have a vacuole.  
      Plant cells have a cell wall, which enables them to become   
      bigger.
   4. Somewhere around 10 µm **1p**
   5. The human nucleus is smaller **1p**Explanation: **1p**  
      Onion cell is bigger, so the nucleus is too   
      Onion nucleus contains more chromosomes.
4. **PLASTIDS**
   1. Around 5 µm **1p**
   2. Somewhere between 30 – 70 µm **1p**
   3. Around 3 - 4 µm **1p**
   4. Conclusion: **1p**  
      Amyloplasts are way bigger that chromo- or chloroplasts.  
      Explanation: **1p**  
      An amyloplast can grow as it stores starch   
      (hence, the growth lines), other plastids can’t.

**END OF THIS TEST**