**EVEN MORE DETAILED MARKING SCHEME PHYSICS – PART 1**

**MECHANICAL PROPERTIES OF HYALURONIC ACID**

**TASK 1: Water binding properties**

Graph 1: suitable scale 1 pt.

 described axes 1 pt.

 units 1 pt.

 correct points, not connected 1 pt.

Correct values of diameter + precision 2 pt.

Correct values of weight + precision 2 pt.

Graph 2: suitable scale 1 pt.

 described axes 1 pt.

 units 1 pt.

 correct points, not connected 1 pt.

Graph 1: suitable scale 1 pt.

 described axes 1 pt.

 units 1 pt.

 correct points, not connected 1 pt.

Correct answer to Question 1.1 2 pt.

Correct values of half-time 1 pt.

Correct units and precision for half-time 1 pt.

 **20 pts.**

**TASK 2: Surface tension of hyaluronic acid**

Sample 1 Table

 four columns per 0.5 pt. + right value 2.5 pt.

 arithmetic mean + abs. error 1 pt.

 result arithmetic mean ± abs. error + unit 1 pt.

Sample 1 Table

 four columns per 0.5 pt. + right value 2.5 pt.

 arithmetic mean + abs. error 1 pt.

 result arithmetic mean ± abs. error + unit 1 pt.

Correct answer to Question 2.2 1 pt.

 **10 pts.**

**TASK 3: Lubrication properties of hyaluronic acid**

Derivation: 2 pts.

Table 1 3 pts.

Table 2 3 pts.

Dry rough side 1 pt.

Dry smooth side 1 pt.

Table 3 3 pts.

Table 4 3 pts.

Lubricated rough side 1 pt.

Lubricated smooth side 1 pt.

Correct answer to Question 3.5. 1 pt.

 **20 pts.**