ESTIMATION OF RETARDATION TIME IN THE KELVIN-VOIGT ELEMENT

Name: .....

Group: .....

Date: .....

1. Goal of the experiment: .....

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2. Experimental results of the measurement of the dependence of elongation Δl_0 of the muscle model (Kelvin - Voigt element) on the force action time.

   a) weight of a single load: Q = ...

   b) force applied to the model: F = ….....

   c) initial position of the indicator (at the start moment of the experiment): l_0 = ...

Data table:

	time t	actual position of the indicator l_i	change in length of the spring-piston system: $\Delta l_i = l_i - l_0$	* value of: $\ln\left(1-\frac{\Delta l_i}{\Delta l_{MAX}}\right)$
1	0			
2				
3				
4				
5				
6				
7				
8				
9				
10				

* make a graph of the function $\Delta l = f\ t$, read off the value of Δl_{MAX} from it

Δl_{MAX} = ...

and perform calculations of the values of the expression $\ln\left(1-\frac{\Delta l_i}{\Delta l_{MAX}}\right)$

3. Make a graph of the function: $\ln\left(1-\frac{\Delta I_i}{\Delta I_{MAX}}\right) = f\ t$ and read off the value of directional coefficient a (the slope) of the obtained straight line:

   $a \pm \Delta a =$ .....

4. Calculated value of the retardation time:

   $\tau_r \pm \Delta\tau_r =$ .....

Conclusions: .....

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