EXAM OF STATISTICS (DESCRIPTIVE STATISTICS AND REGRESSION)

2nd Physiotherapy	Version A	June, 06 2022		
Name:	DNI:	Group:		

Duration: 1 hour.

(5 pts.) 1. The patients of a physiotherapy clinic were asked to assess their satisfaction in a scale from 0 to 10. The assessments are summarized in the table below.

Assessment	Patients
0 - 2	3
2 - 4	12
4 - 6	9
6 - 8	18
8 - 10	22

- (a) Compute the interquartile range of the assessment and interpret it.
- (b) If it is required an assessment greater than 5 in more than 50% of patients for the clinic to remain open, will the clinic remain open?
- (c) Is the assessment mean representative?
- (d) Compute the coefficient of kurtosis of the assessment and interpret it. Is the kurtosis normal?
- (e) If the assessment mean of another clinic is 6.8 and the standard deviation is 2.6, which assessment is relatively higher 6 in the first clinic or 6.2 in the second?

Use the following sums for the computations: $\sum x_i n_i = 408$, $\sum x_i^2 n_i = 3000$, $\sum (x_i - \bar{x})^3 n_i = -548.25$ and $\sum (x_i - \bar{x})^4 n_i = 5140.45$.

(5 pts.) 2. A study tries to determine the effectiveness a training program to increase the grip strength. The table below shows the grip strength in Kg in some weeks of the training program.

Week	1	3	6	9	14	17	21	24
Grip strength	15	22	29	34	36	39	40	41

- (a) Compute the regression coefficient of the grip strength on the weeks and interpret it.
- (b) According to the logarithmic regression model, what is the expected grip strength after 5 and 25 weeks. Are these predictions reliable? Would these predictions be more reliable with the linear regression model?
- (c) According to the exponential regression model, how many weeks are required to have a grip strength of 25 Kg?
- (d) What percentage of the total variability of the weeks is explained by the exponential model?