ABBES LAGHROUR University, Khenchela.
Faculty of Sciences. Department of Mathematics and Computer Science.
Academic year: 2023–2024.
1st Year mathematics, mathematics and computer science.
Module: Introduction to probability and descriptive statistics.
Responsible for the module : DERDOUKH .A

The final Exam

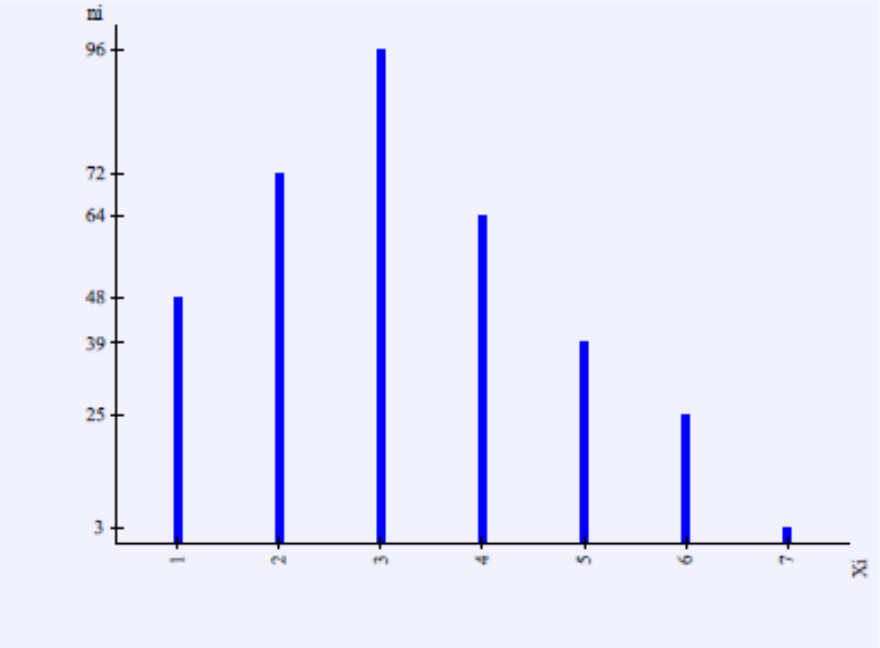
❖ *Exercise 1:*

State whether these sentences are true or false

The sentence	***T***	***F***
1) In statistics, the term "value" always refers to numbers.		
2) If you would like to find the median, then numeric data values should first be placed in numerical order.		
3) The standard deviation is always less than or equal to 0.		
4) A cumulative relative frequency graph always increases or stays constant (flat) and always reaches 100% as its maximum.		
5) The word "proportion" is equivalent to relative frequency, fraction, and percentage.		
6) Data analysis does not depend on whether a variable is categorical or quantitative.		

❖ *Exercise 2:*

In a small town, we noted the number of rooms per apartment, and we prepared the following graphical representation (*The results are given rounded to* 10^{-2}*).*



1) The Mode of this statistical series is

1)	***2***	***2)***	***3***	***3)***	***25***

2) The Arithmetic mean of this statistical series is

1)	***3.27***	***2)***	***3.18***	***3)***	***3.37***

3) The Variance of this statistical series is

1)	***2.15***	***2)***	***2.12***	***3)***	***2.19***

4) The Standard deviation of this statistical series is

1)	***1.46***	***2)***	***1.56***	***3)***	***1.64***

5) The Geometric mean of this statistical series is

1)	***2.71***	***2)***	***2.81***	***3)***	***2.89***

6) The Harmonic mean of this statistical series is

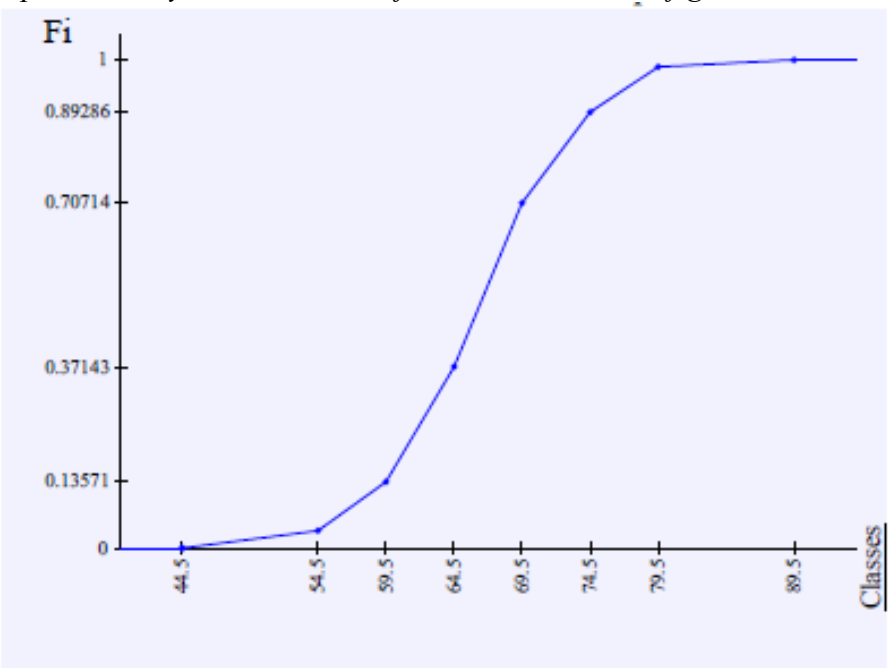
1)	***2.75***	***2)***	***2.30***	***3)***	***2.40***

7) The quadratic mean of this statistical series is

1)	***3.65***	***2)***	***3.50***	***3)***	***3.70***

❖ ***Exercise 3:***

The statistical series is represented by the distribution function curve in the figure below



1) *The First quartile of this statistical series is*

1)	***61.9242***	***2)***	***61.8232***	***3)***	***61.7222***

2) *The Median of this statistical series is*

1)	***66.3138***	***2)***	***66.4148***	***3)***	***66.5158***

3) *The Third quartile of this statistical series is*

1)	***70.6538***	***2)***	***70.7548***	***3)***	***70.8558***

4) *The Extent* ***e*** *of this statistical series is*

1)	***25***	***2)***	***35***	***3)***	***45***

❖ ***Exercise 4:***

I. *Let A and B be two events, from the same probability space* ***(Ω, F, P),*** *such that:*

$$P(B/\bar{A}) = 0.06;\quad P(B/A) = 0.95\ ;\ P(A) = 0.02$$

1) *The value of the conditional probability of A knowing B:* $(P(A/B))$ *is*

1)	***0.2442***	***2)***	***0.7558***	***3)***	***0.057***

2) *The value of the conditional probability of* $\bar{A}$ *knowing* $\bar{B}$*:* $(P(\bar{A}/\bar{B}))$ *is*

1)	***0.019***	***2)***	***0.9989***	***3)***	***0.0011***

II. If we have the probability of an event E is $(\frac{9}{20})^n$, then the smallest value of n which makes $P(\bar{E}) \geq 0.99$ is

1)	***6***	***2)***	***7***	***3)***	***5***