

University of Damascus
Faculty of Sciences/3rd Year - Department of Statistics
English for Statisticians
ملاحظة للسادة المراقبين: مسموح استعمال الآلات الحاسبة
Time: 1.30 hours, Four questions, Date, February - 2025

I) Choose the best answer for each question: (5 marks each)

- 1) D: تخالف ,
- 2) D: Moments,
- 3) C,
- 4) A ,
- 5) D: 70 ,
- 6) D: an interval estimate ,
- 7) D: $\mu_{\{\bar{X}_1\}} - \mu_{\{\bar{X}_2\}} = 0$,
- 8) C ,
- 9) D ,
- 10) D: unbounded

II) Translate into Arabic

1) (5 marks) Expectation of a random variable:
العزم الثاني لمتحول (متغير) عشوائي

2) (10 marks) Occasionally, the mean deviation is defined in terms of absolute deviations from the median.
أحياناً، يُعرّف الانحراف المتوسط بدلالة الانحرافات المطلقة عن الوسط

III) Translate into English

1) (5 marks)
التشتت المطلق
Absolute dispersion

2) (10 marks)
إذا بُدّرت الانحرافات عن المتوسط بوحدات الانحراف المعياري، قلنا إنه يُعبّر عنها بالوحدات المعيارية.
If the deviations from the mean are given in units of standard deviation, they are said to be expressed in standard units.

IV) Solve the following. (20 marks)

Suppose that n observations X_1, X_2, \dots, X_n , are made from a normally distributed population of which the mean μ is unknown and the variance σ^2 is known.

1) What is the joint density function for the n observations?

$$L = (2\pi\sigma^2)^{-n/2} e^{-\sum (x_i - \mu)^2 / 2\sigma^2}$$

2) Give the expression of the mean estimation

$$\mu = \frac{\sum x_i}{n}$$