

**STATISTICAL METHODS FOR BUSINESS.**  
**Second assessment test (Statistical Inference)**

1. Given a simple random sample (s.r.s.) drawn from a normal population, the elements of the sample are:
  - Normal random variables.
  - Independent random variables.
  - Both answers.
  
2. In order to estimate a certain parameter, two unbiased estimators,  $T_a$  and  $T_b$ , are suggested. Knowing that  $\text{Var}(T_a) > \text{Var}(T_b)$ , it could be stated that:
  - $T_b$  is more efficient than  $T_a$ .
  - The mean square error of  $T_b$  is smaller than that of  $T_a$ .
  - Both answers.
  
3.  $X$  is a random variable having a normal distribution with known  $\sigma$ . Given a simple random sample of size 35, the confidence interval for the population mean would be obtained based on:
  - Student's  $t$  distribution with 35 d.f.
  - the  $N(0,1)$  distribution.
  - Student's  $t$  distribution with 34 d.f.
  
4. In order to estimate the population proportion ( $p$ ) with given confidence level and error margin, the minimum simple size can be obtained by replacing  $p(1-p)$  with its least upper bound, which is reached when:
  - $p=0.5$ .
  - $p=0.2$ .
  - $p=0.8$ .
  
5. When testing the null hypothesis  $H_0: \mu = \mu_0$  versus  $H_0: \mu > \mu_0$  the null is rejected if:
  - The sample mean is smaller than  $\mu_0$ .
  - The  $p$ -value is close to zero.
  - Both answers.

**Time limit: 10 MINUTES**

<b>Scoring criteria</b>	Right answer: +2 point
	Wrong answer: -1/2 point