

**STATISTICS APPLIED TO BUSINESS ADMINISTRATION**  
**ACADEMIC YEAR 2018-2019**  
**PRACTICAL EXERCISES 6 AND 7 (30 MINUTES)**

Date: \_\_\_\_\_

Complete name: \_\_\_\_\_ ID number: \_\_\_\_\_

**EXERCISE 1 (10 POINTS)**

Let  $X$  be a r.v. having a uniform distribution on the interval  $(0, \theta)$ . In order to test the null hypothesis  $H_0 : \theta = 5$  against the alternative hypothesis  $H_1 : \theta = 10$ , a r.s. of size  $n = 1$ ,  $X_1$ , has been taken, and it is decided that the null hypothesis will be rejected if  $X_1 > 3.5$ .

1. **(5 point)** Compute the significance level for this test.
2. **(5 points)** Compute the power for this test.

**EXERCISE 2 (10 POINTS)**

The manager of a given firm wishes to find out if the number of employees calling in sick is uniformly distributed among the five working days of the week. The following data were obtained from a random sample of four complete working weeks:

Day	Monday	Tuesday	Wednesday	Thursday	Friday
Number of employees calling in sick	49	35	32	39	45

1. **(3 points)** What type of test would you perform to test the hypothesis of interest? Justify your response. In addition, state the hypotheses you wish to test.
2. **(7 points)** At the 5% significance level, is there any reason that could lead the manager of the firm to believe that the number of employees calling in sick can not be assumed to be uniformly distributed among the five working days of the week?