Bachelor's Degree in Primary Education
Mathematics and Associated Teaching Methods I
School year 2017/2018
January 16th, 2018

UNIVERSIDAD DE OVIEDO
Departamento de Estadística e I.O.
y Didáctica de la Matemática

ORDINARY CALL

THEORETICAL PART: 4 points
APPLIED PART: 6 points
To pass the exam, you must obtain at least the 50% of the score corresponding to each one of the parts.

THEORETICAL PART

1. **(1,5 points)** Describe the context in which a fraction is viewed as a ratio and design a teaching situation to introduce this context in a classroom of the 5th grade of Primary Education.
2. **(1 point)** Define: greatest common divisor of two numbers, pure recurring decimal number, prime number and natural number. Put an example of each one of them.
3. **(1,5 points)** Design a wording for each one of the two conceptions of division. In one of them one of the components of the division must be an improper fraction.

APPLIED PART

1. **(1,5 points)** In the last local elections, the votes of the 15525 electors of a village were distributed as follows: 2/5 of the electors voted for the party A, 4/9 of the electors voted for the party B, the 8% of the electors voted for the party C, and there were 621 votes more including blank or invalid votes. How many electors abstained from voting? What is the irreducible fraction with respect the total of electors of the village representing the electors abstained from voting? What percentage of the people who voted in the elections represents those people who voted to the most voted party?

2. **(1 point)** a) A group of friends buy 6 pizzas and they eat all of them. If each friend eats ¾ of pizza, ¿how many friends are they? b) Express 45 minutes as an irreducible fraction of day.

3. **(1 point)** *"I only have a birthday the leap years (años bisiestos) ending in two".* This sentence can be heard in a song of Joaquín Sabina. Remember that 2016 was a leap year. a) If this singer was born in the year 1949 and taking into account the sentence above, indicate the years in which that singer has had a birthday. b) Knowing that 1949 is not divisible by any number lower than 40, analyze if 1949 is a prime number.

3. **(1,5 points)** From 250 people asked about their breakfast, we have obtained the following answers: 30 people use to drink tea with milk, 40 people use to drink coffee with milk, 80 people use to drink milk, 130 people use to drink tea or milk, and 150 people use to drink coffee or milk. In addition, no one drink coffee mixed with tea.
   a) How many people use to drink only tea? b) How many people use to drink only milk?
   c) How many people don't drink any of the three things?

4. **(1 point)** The temperatures in Astorga have varied a lot since the 5th of December. The first week the temperature decreased 8,5 degrees; the second week it increased 4 times 1,8 degrees each time; the third week it decreased two times 2,04 degrees each time; the fourth week it increased the half part of 10,15 degrees and the fifth week it decreased 8,305 degrees. Finally, the temperature has increased 12,35 degrees and the thermometer shows 6 degrees today. What was the temperature in Astorga the 5th of December?

ARGUE YOUR ANSWER IN ALL THE QUESTIONS. THE USE OF THE CALCULATOR IS NOT ALLOWED.
DELIVER ALSO THE CALCULATION SHEETS