Bachelor's Degree in Primary Education
Mathematics and Associated Teaching Methods I
School year 2017/2018
June 13th, 2018

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

EXTRAORDINARY 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 point)** Which are the differences and similarities between the additive and the positional numeral systems?
2. **(1 point)** Identify and describe the stages of the division algorithm, including an example for each one of the steps.
3. **(1 point)** Consider the fraction 3/8. Design two contexts in which that fraction has sense and indicate in each case the meaning of the numerator and the denominator: a) as a part of a whole; b) as a result of a measure.
4. **(1 point)** Define and put at least one example of each one of the following mathematical concepts: least common multiple of three numbers, complement of a set, integer number, co-prime numbers, pure recurring decimal number.

APPLIED PART

1. **(1 point)** Elías has a shopping basket that supports a maximum of 20 kg. He has purchased 2 orange bags of 0'750 kg each, 4'265 kg of fish, 3 chickens that have weighed 1'893 kg, 2,104 kg and 1,978 kg respectively, 3 packages of flour of 1 kg each and 5 packages of pasta of 0.5 kg each. How much weight does he have left in the shopping basket?

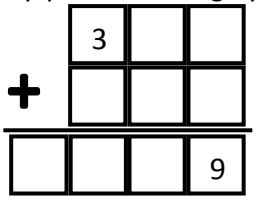
2. **(1 point)** Luis has spent successively 2/4, 1/9 and 1/12 of his initial money. If he had 17€ more, he would have 160€ left. How much money did he have at the beginning?

3. **(1 point)** I have to store 36 balls in boxes. In what different ways can I do it so that each box has the same number of balls?

4. **(1 point)** Laura has albums of different musical genres: pop, rock, punk, gothic, classical and jazz. Her friend Diana has salsa, gothic, hip-hop, pop, metal and industrial albums. Luis, a common friend, wanted to listen to the music that each of them likes, so they lent him an album of each one of the genres. a) What genres have the discs the girls lent to Luis? b) If Luis decides to listen first to the albums that both of them like, what albums should he hear? c) Express the above situations in terms of sets.

5. **(1 point)** We bought 6 ties and 2 hats for 278€. The 2 hats cost 62€ more than the 6 ties. Find the price of a hat and a tie.

6. **(1 point)** Fill all the gaps of the graphic using all the digits from 0 to 9. The sum of the digits of the second addend must be 13. Justify your reasoning by taking into account the properties of the decimal numeral system.



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