Exam: CHEMICAL CALCULUS 1. Batxilergoa	
Name:	**Group:**

1	**The concentration of a NaCl solution is 2M and the density is 1.10 g/mL. Calculate the concentration in** • **g/L** • **weight percentage**
Atomic weights: Na=23; Cl=35.5	

2	**A container has a solution of nitric acid and from that container we can read the following information:** • **HNO_3** • **40 %** • **d=1.25 g/mL** **Calculate the volume we need to take from this container in order to get 500 mL of a solution 0.3 M by dilution.**
Atomic weights: N=14; H=1; O=16	

3	**When we burn butane (C_4H_{10}) carbon dioxide and water are formed. Calculate the amount of butane we need to burn in order to get 18 L of carbon dioxide in the following conditions: temperature=27°C and pressure=2 atm.**
Atomic weights: C=12; H=1; O=16 $R = 0.082 \frac{atm.L}{K.mol}$	

4	**When zinc metal and hydrochloric acid combine with each other, zinc chloride ($ZnCl_2$) and hydrogen are formed.** **If we put together 20 g of a sample of zinc (85 % of purity) and 250 mL of a solution of HCl 3M,** • **determine the limiting reactant** • **calculate the amount of zinc chloride formed** • **calculate the volume of hydrogen at STP** • **calculate the excess of reactant**
Atomic weights: Zn=65.4; Cl=35.5 H=1	