

系所組別： 腔醫學研究所丙組

考試科目： 普通化學

考試日期： 0307，節次： 3

※ 考生請注意：本試題 可 不可 使用計算機

1. Please describe and explain (a) salt bridge, (b) first ionization energy, (c) enthalpy, (d) surface energy, (e) specific heat capacity. (20%)
2. Describe and compare *Ideal Gas* and *Real Gas*. (10%)
3. The periodic table is grouped into "A" and "B". Please describe the distinction between IA and IIA elements. (10%)
4. Calculate the molar solubility of PbF_2 in water? The K_{sp} for PbF_2 is 2.7×10^{-8} . (10%)
5. Calculate the ratio of root-mean-square molecular speed of CO_2 and SO_2 at 25°C and 100 atm? (Atomic weight, C = 12, O = 16, S = 32) (10%)
6. Predict whether the following molecules are polar or nonpolar, (a) KCl, (b) CH_4 , (c) CO_2 . You need to explain your prediction. (15%)
7. Describe in detail steps how to prepare 100 mL of 1.0 M H_2SO_4 from the concentrated sulfuric acid (95% w/w, specific gravity 1.83) (15%)
8. A first-order reaction is 30% complete in 480 s. (a) calculate the rate constant, (b) What is the value of the half time? (10%)