

淡江大學 105 學年度日間部轉學生招生考試試題

系別：化學組二年級

科目：普通化學

11-1

考試日期：7月21日(星期四) 第3節

本試題共 4 大題， 1 頁

- (20 pts) For electron and photon, describe their wave and particulate properties.
- (20 pts) Explain the following terms:
 - reaction intermediate
 - rate determining step
 - enantiomers
 - lanthanide contraction
- (30 pts) For each of the following molecules, predict the molecular structure (including bond angles), give the expected hybrid orbitals on the central atom, and predict the overall polarity.
 - OF_2
 - AsF_5
 - BF_3
- (30 pts) Answer the following questions for N_2 .
 - (10 pts) Draw the molecular orbital (MO) energy-level diagram of the ground state. Label the highest occupied molecular orbital (HOMO) and lowest unoccupied molecular orbital (LUMO).
 - Give the electron configuration of the 1st excited state.
 - For (a) and (b), calculate the bond order for each.