

大葉大學 95 學年度轉學招生考試試題紙

系	組	別	日\第二部	年級	考試科目 (中文名稱)	考試日期	節次	備註
分子生物科技學系			日	二	普通化學	8月7日	4	1. 時間: 13:30~14:50 2. 可攜帶「不可程式」 之一般計算機

註：考生可否攜帶計算機或其他資料作答，請在備註欄註明（如未註明，一律不准攜帶）

共 20 題，每題 5 分，答錯不倒扣。本題目共兩頁，『請依題號於答案卡上畫記作答』！(P2-1)

- Express 1870000 in scientific notation.
 - 5.49×10^{-8}
 - 1.87×10^{-6}
 - 1.87×10^6
 - 187×10^6
- Which of the following involves a chemical change?
 - boiling water
 - melting ice
 - chopping wood
 - cooking an egg
- Which of the following is a physical change?
 - burning gasoline
 - cooking an egg
 - decomposing meat
 - evaporating water
- What is the most abundant element found in the human body?
 - carbon
 - hydrogen
 - calcium
 - oxygen
- The correct formula for iron (III) nitrate is
 - $\text{Fe}_2(\text{NO}_3)_2$
 - $\text{Fe}(\text{NO}_3)_3$
 - $\text{Fe}(\text{NO}_3)_2$
 - $\text{Fe}_2(\text{NO}_3)_3$
- All the following are clues that a chemical reaction has taken place *except*
 - a color change
 - a solid forms
 - the reactant is smaller
 - bubbles form
- $\text{AgNO}_3(\text{aq}) + \text{NH}_4\text{Cl}(\text{aq}) \rightarrow$
 - $\text{Ag}_2\text{Cl}(\text{s})$
 - $\text{AgCl}(\text{s})$
 - $\text{NH}_4\text{NO}_3(\text{s})$
 - $\text{AgNH}_4(\text{s})$
- Choose the false statement.
 - $1 \text{ mol} = 6.02 \times 10^{23} \text{ amu}$
 - $6.02 \times 10^{23} \text{ atoms} = 1 \text{ mol of atoms}$
 - $6.02 \times 10^{23} \text{ hydrogen atoms weigh } 1.008 \text{ g}$
 - $1 \text{ mol of carbon atoms weighs } 12.0 \text{ g}$
- An excess of Al and 6.0 mol of Br_2 are reacted according to the equation, $2\text{Al} + 3\text{Br}_2 \rightarrow 2\text{AlBr}_3$, How many moles of AlBr_3 will be formed assuming 100% yield?
 - 2.0 mol
 - 3.0 mol
 - 4.0 mol
 - 6.0 mol
- The distance between two successive peaks or troughs in a wave is called
 - the frequency
 - the wavelength
 - the speed
 - the amplitude

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11. When electrons are shared unequally, chemists characterize these types of bonds as _____.
 - A. polar covalent
 - B. ionic
 - C. pure covalent
 - D. unbalanced

12. Calculate the density of neon gas at 1.00 atm and 25.0°C.
 - A. 0.825 g/L
 - B. 9.84 g/L
 - C. 20.2 g/L
 - D. 22.4 g/L

13. At 1 atm of pressure and a temperature of 0°C, which phase(s) of H₂O can exist?
 - A. ice and water
 - B. ice and water vapor
 - C. water only
 - D. water vapor only

14. One mole of each of the following compounds is added to water in separate flasks to make 1.0 L of solution. Which solution has the largest *total* ion concentration?
 - A. calcium carbonate
 - B. potassium phosphate
 - C. aluminum hydroxide
 - D. silver chloride

15. Consider the reaction $\text{HNO}_2(\text{aq}) + \text{H}_2\text{O}(\text{l}) \rightarrow \text{H}_3\text{O}^+(\text{aq}) + \text{NO}_2(\text{aq})$. Which species is the conjugate base?
 - A. $\text{HNO}_2(\text{aq})$
 - B. $\text{H}_2\text{O}(\text{l})$
 - C. $\text{H}_3\text{O}^+(\text{aq})$
 - D. $\text{NO}_2(\text{aq})$

16. Chemists believe that chemical reactions occur because the molecules involved in the reaction _____.
 - A. spontaneously break apart then recombine
 - B. are always unstable
 - C. exist only below a certain maximum temperature
 - D. collide with each other with enough energy to break chemical bonds

17. Which one listed below is a loss of electrons?
 - A. Reduction
 - B. Neutralization
 - C. Oxidation
 - D. Galvanization

18. Which of the following is *not* an example of spontaneous radioactive process?
 - A. alpha-decay
 - B. beta-decay
 - C. positron production
 - D. autoionization

19. In a molecule, carbon always forms bonds with how many other elements.
 - A. one
 - B. two
 - C. three
 - D. true for all listed above

20. A double bond involves sharing how many of the electrons?
 - A. 2
 - B. 3
 - C. 4
 - D. 5