

銘傳大學 97 學年度轉學生招生考試

生物科技學系

普通化學試題

(7 月 24 日 第四節)

(第 / 頁共 / 頁) (限用答案本作答)

可使用計算機 不可使用計算機

可使用計算機

Atomic Weights: Na = 22.99, C = 12.01, N = 14.01, H = 1.008, O = 16.00, S = 32.06

A. Explain the following terms : (30%)

1. Hydrophobic
2. pI value
3. Free energy
4. Epimer
5. Conjugate Acids and Bases
6. Hydrogen bond
7. Ampholyte
8. Zwitterion
9. Anomer
10. Hydrolysis

B. Short Answer Questions : (70%) 10pts each

1. What is the pH of a solution containing 0.1M acetic acid ($pK_a=4.7$) and 1M sodium acetate ?
2. Calculate the molarity of a solution of 2.45 g of NaCN in 2.00 L of solution.
3. Balance the following equation. What is the sum of the coefficients of the reactants?
$$C_6H_{10}O_5 + \underline{\quad} O_2 \rightarrow \underline{\quad} CO_2 + \underline{\quad} H_2O$$
4. Which of the following molecules is/are nonpolar ?
(A)H₂O (B) HCl (C)C₂H₆ (D)NH₃ (E)CH₃COOH
5. Aspartame, an artificial sweetener, has the molecular formula C₁₄H₁₈N₂O₅. What is the weight percent of carbon?
6. Determine the number of moles of solute present in 255 mL of 1.25 M H₂SO₄.
7. A solution is prepared by dissolving 516.5 mg of oxalic acid (C₂H₂O₄) to make 100.0 mL of solution. A 10.00 mL portion is then diluted to 250.0 mL. What is the molarity of the final solution ?

試題完