

大同大學 102 學年度 轉學入學考試試題

考試科目:化學

所別:材料工程學系

第 1/1 頁

註:本次考試 不可以參考自己的書籍及筆記; 不可以使用字典; 不可以使用計算器。

一、名詞解釋(30%)

(a) Third law of thermodynamics (b) State function (c) electrolysis (d) Entropy (e) Polymer (f) Solutions (g) Hard water
(h) Bond energy (i) galvanic cells (j) Enthalpy

二、元素符號(20%)

請將下列(a)~(t)寫出其元素符號

(a) Lithium	(f) Zinc	(k) Iron	(p) Tin
(b) Silicon	(g) Titanium	(l) Fluorine	(q) Potassium
(c) Platinum	(h) Silver	(m) Antimony	(r) Copper
(d) Mercury	(i) Lead	(n) Sodium	(s) Carbon
(e) Gold	(j) Palladium	(o) Argon	(t) Cobalt

三. Translation the follow sentence: (25%)

- First Law of Thermodynamics: The total amount of energy in the universe is constant (also known as the Law of Conservation of Energy); energy is neither created nor destroyed in ordinary chemical reactions and physical changes.
- Standard entropy change, ΔS^0 : The entropy change in which the number of moles of reactants specified in the balanced chemical equation, all at standard states, is converted completely to the specified number of moles of products, all standard states.
- Boiling Point: The temperature at which the vapor pressure of a liquid is equal to the external pressure; also the condensation point.
- Triple point: The point on a phase diagram that corresponds to the only pressure and temperature at which three phases (usually solid, liquid, and gas) of a substance can coexist at equilibrium.
- Gibbs free energy, ΔG : The indicator of spontaneity of a process at constant T and P. $\Delta G = \Delta H - T\Delta S$. If ΔG is negative, the process is product-favored (spontaneous); also called free energy change.

四. Please following interactions are the strongest the order of increasing. (5%)

(a) Hydrogen bonding (b) London forces (c) Covalent bonds (d) ion-ion interactions (e) Dispersion forces

五. Which of these liquids would have the highest surface tension at 25°C? (5%)

(a) Br₂ (b) H₂O (c) CCl₄ (d) C₅H₁₂ (e) CH₃OCH₃

六. 請寫出 "異丙醇", "順丁烯二酸", "聚丙烯", "鐵弗龍", "葡萄糖"之化學結構式。(15%)