

國立成功大學
110學年度碩士班招生考試試題

編 號：289

系 所：環境醫學研究所

科 目：環境化學

日 期：0203

節 次：第 3 節

備 註：不可使用計算機

※ 考生請注意：本試題不可使用計算機。 請於答案卷(卡)作答，於本試題紙上作答者，不予計分。

1. Balance the following equations: (4% for each, 20%)
 - (a) Oxidation of I^- to I_2 and reduction of MnO_2 to Mn^{2+}
 - (b) Oxidation of $S_2O_3^{2-}$ to SO_4^{2-} and reduction of Cl_2 to Cl^-
 - (c) Oxidation of NH_4^+ to NO_3^- and reduction of O_2 to H_2O
 - (d) Oxidation of CH_3COO^- to CO_2 and reduction of $Cr_2O_7^{2-}$ to Cr^{3+}
 - (e) Oxidation of $C_6H_{12}O_6$ to CO_2 and reduction of NO_3^- to N_2
2. What evidences had been stemmed to confirm that iron and manganese gain entrance to water supplies through changes produced in environmental conditions as results of biological reactions? (20%)
3. Please use reactive equation and methane as example to interpret the role of hydrocarbons in the photochemical smog (10%) and the productive mechanism of PAN (Peroxyacetyl nitrate) 10%
4. Draw a structure to correspond to each of the following names (20%, 4 % for each).
 - a. Polybrominated diphenyl ether
 - b. Polychlorinated dibenzo-p-dioxin and dibenzofuran
 - c. Nonylphenol
 - d. dibutylphthalate
 - e. hexabromocyclododecane
5. Please describe the formation mechanism of primary and secondary $PM_{2.5}$? (20%)