

114EP01

國立臺北科技大學 114 學年度碩士班招生考試

系所組別：3210 環境工程與管理研究所甲組

第一節 環境工程 試題

第 1 頁 共 1 頁

注意事項：

1. 本試題共 6 題，共 100 分。
2. 不必抄題，作答時請將試題題號及答案依照順序寫在答案卷上。
3. 全部答案均須在答案卷之答案欄內作答，否則不予計分。

1. (1) What are PFAS (poly- and perfluoroalkyl substances)? Please also list two kinds of PFAS. (2) Please describe the drinking water regulation of PFAS in Taiwan. (10 points each, 20 points total)
2. At 1.2 atm and 25°C, how many mg/m³ is equal to 100 ppm NO? ($R=0.082 \text{ L}\cdot\text{atm}\cdot\text{K}^{-1}\cdot\text{mol}^{-1}$) ($N=14$, $O=16$) (15 points)
3. What is the theoretical oxygen demand in liters of air for a 100 mg/L solution of acetone, CH_3COCH_3 , to decompose completely? (15 points)
4. A sample of mixed liquor has a total suspended solids concentration of 4000 mg/L, which settles to 400 mL in 30 min in a 1 liter cylinder. What is the sludge volume index? (15 points)
5. A small room is to be used for a copy machine, and there is concern that the ozone level may be too high unless the room is ventilated. The volume of the room is 20000 L, and it is recommended that the number of air changes per hour be 30. What flow of air must the fan deliver? (15 points)
6. An industrial wastewater treatment process uses activated carbon to remove color from the water. The color is reduced as a first-order reaction in a batch adsorption system. If the rate constant (k) is 0.35 day^{-1} , how long will it take to remove 90% of the color? (20 points)