

國立臺北科技大學 101 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

第一頁 共一頁

注意事項：

1. 本試題共 7 題，配分共 100 分。
2. 請標明大題、子題編號作答，不必抄題。
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. What is the theoretical oxygen demand and total organic carbon (TOC) in mg/L for a 500 mg/L solution of CH_3NH_2 to decompose completely? (C=12, H=1, N=14) (15 points)
2. A wastewater sludge centrifuge operates with a feed of 40L/min and a feed solids concentration of 1.2 %. The cake solids concentration is 25% solids, and the centrate (dewatered stream) solids concentration is 500 mg/L. What is the recovery of solids? (15 points)
3. Please explain the definition of Langelier saturation index (LSI) and its application in Environmental engineering. (15 points)
4. Smokers in a room (5m×5 m×2.5 m) are smoking. If the emission rate of a cigarette is 80 mg/hr of CO and if the ventilation is 0.5 change per hour, what is the level of CO in the room? (O=16) (15 points)
5. A stack gas contains carbon monoxide (CO) at a concentration of 20 % by volume. What is the concentration of CO in $\mu\text{g}/\text{m}^3$? (assuming 25 °C and 1 atmosphere pressure) (10 points)
6. Please describe the strategies for controlling sulfur oxides. (15 points)
7. A machine shop has two machines, one producing a sound pressure of 70dB and one producing 57dB. A new machine producing 70dB is brought into the room. What is the new sound pressure in the room? (15 points)