

國立中央大學 111 學年度碩士班考試入學試題

所別： 環境工程研究所 碩士班 乙組(一般生)

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科目： 環境工程概論

1. 解釋名詞 (20%)
 - (A) Solid recovered fuel (SRF)
 - (B) Sustainable Development Goals (SDGs)
 - (C) Greenhouse gas
 - (D) cyclone
 - (E) Disinfection by products (DBPs)
2. Please draw a schematic diagram to explain “Crown corrosion (冠狀腐蝕)” in sewers. (15%)
3. An air pollution control device is to remove a particulate that is being emitted at a concentration of $125,000 \mu\text{g}/\text{m}^3$ at an air flow rate of $180 \text{ m}^3/\text{s}$. The device removes 0.48 metric ton per day. What are the emission concentration and the collection recovery? (15%)
4. Please describe what Net Zero (淨零排放) is. (15%)
5. A wastewater treatment plant would like to improve its ammonia nitrogen ($\text{NH}_3\text{-N}$) removal, and the plant manager selected Modified Ludzack-Ettinger (MLE) to remove ammonia nitrogen. Please draw a schematic diagram of MLE method, and what is fundamental theory of MLE (hint: write nitrification and denitrification reaction and the responsible microorganisms). (15%)
6. Incineration, pyrolysis (熱裂解), and gasification (氣化) are common thermal methods used to treat solid waste. Please describe the three methods and their applications. (20%)