

※ 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. Drinking Water Treatment (20%)

- (1) Describe four basic purification processes used in drinking water treatment, and introduce one advanced water purification process (10%)
- (2) Name three drinking water contaminants listed in drinking water quality standards, and briefly describe why they are regulated (6%)
- (3) Explain the purpose for having free residual chlorine in drinking water (4%)

2. Wastewater Treatment (15%)

- (1) Explain how organic pollutants influence the concentrations of dissolved oxygen in water, and why excess phosphorus or nitrogen leads to eutrophication (5%)
- (2) Introduce the treatment processes in a common secondary wastewater treatment plant, and state the potential applications of treated effluents and sludge cakes (10%)

3. Air Quality Control (25%)

- (1) Define Air Quality Index (AQI) and list the air pollutants used for AQI calculation (10%)
- (2) Introduce two control technologies for treating particulate and gaseous pollutants (8%)
- (3) Define PM_{2.5}, and discuss its pollution sources and adverse health effects (7%)

4. Soil/Groundwater Contamination Management (20%)

- (1) Describe two treatment technologies suitable for treating farmland metal pollution (8%)
- (2) State the definition of pollution control site and pollution remediation site, and introduce two pollution remediation sites in Taiwan (8%)
- (3) Define “DNAPL” and “LNAPL” (4%)

5. Waste Management (20%)

- (1) Introduce how incinerators work, and list the advantages/disadvantages of incineration and landfill treatment (10%)
- (2) State why separating food waste from general waste is important, and explain how food waste can be recycled (6%)
- (3) Define “Zero Waste” and “Circular Economy” (4%)