

本試題是否可以使用計算機:  可使用,  不可使用 (請命題老師勾選)

1. Disinfection unit is an essential treatment process for drinking water(16%)
  - (1).What are the different mechanisms of pre-chlorination and post-chlorination?  
to explain their operating conditions in terms of pH range and dosage.
  - (2).What is the disinfection mechanism of ozonation?  
to explain its operating conditions and disinfecting efficiency for bacterial and virus destruction.
2. Extremely high turbidity and suspended solid concentration were happened in Taiwan water reservoir. (16%)
  - (1).What characteristics of this turbid water supply can be identified in terms of chemical and physical properties.
  - (2).Sketch a flow diagram of an advanced water treatment process to purify this turbid water supply (>3,000NTU) for drinking water. Explain the unit function.
3. Several filtration processes are designed to remove the micro-meter and nano-meter fine particles from the drinking water and the reused effluents.(20%)
  - (1).Explain at least 4 types of filtration unit for these purposes.  
What are their separating particle size and removal mechanism.
  - (2).Combination of 2 types of membrane filtration can be explained to produce the ultra-pure water. How to combine two different membrane units?
4. Two types of sewer systems are constructed in Taiwan cities, i.e.,interceptive sewer along the river drainagechannels and sanitary sewer piping system in the resident community.(16%)
  - (1).Explain their different usage and construction types.
  - (2).Write out three statements of advantage and disadvantage, respectively.
5. Sketch the flow diagram of wastewater treatment processes with at least two types of (1).Primary process, (2).Secondary process, (3)tertiary process for removal of particle(SS), biodegradable organics(BOD) and by-product particle. Explanation of removal mechanism is necessary. (16%)
6. Municipal sewage treatment plant produces awful odor and smell near the resident community.(16%)
  - (1).Which treatment unit (basin or tank) should be covered and the produced odor should be drawn out for further treatment.
  - (2)What types of the odor removal process could be used? Write out at least two types with functional statement.