

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. Please draw a flow chart and describe the major units of a conventional drinking water treatment plant. If the turbidity of source water is high up to 30,000 units, how do you modify the process of drinking water treatment plant? (10%)
2. Please list the methods of disinfection for the drinking water and explain both the advantages and disadvantages of the method, respectively. (10%)
3. If an industrial wastewater stream has a flow rate of 50 cubic meter per hour and contains COD concentration of 3,000 mg/L, BOD/COD ratio of 0.3, SS concentration of 400 mg/L and  $\text{Cr}^{+6}$  concentration of 200 mg/L, please draw the flow chart and explain how to arrange the wastewater treatment processes and how to design the size of each unit? (10%)
4. Please draw the flow chart of a treatment and disposal process for the wastewater sludge. The sludge was from the wastewater in the above problem 3 [a flow rate of 50 cubic meter per hour, COD concentration of 3,000 mg/L, BOD/COD ratio of 0.3, SS concentration of 400 mg/L and  $\text{Cr}^{+6}$  concentration of 200 mg/L]. (10%)
5. Please list five major compounds having ozone depletion potential and five green house gases causing global warming. Try to propose and differentiate the mechanisms of these compounds for the effects of ozone depletion and global warming, respectively. (10%)
6. Please describe the removal processes and mechanisms of aerosol particles. (10%)
7. Please draw a figure and explain the theory, operational process, advantages and disadvantages of Bag Filter for the removal of air pollutants in the flue gas stream. (10%)
8. Please explain both the significance and the methods of "Full Recycling and Zero Discharge" for the wastes in Taiwan. (10%)
9. Please characterize both bottom ash and fly ash from the municipal waste incineration and propose the treatment and disposal methods for these kinds of ashes. (10%)
10. Please characterize the agricultural wastes and propose the treatment methods for them. (10%)