

國立中央大學九十一年度碩士班研究生入學試題卷

所別： 環境工程研究所 乙組丙組科目： 環境工程概論 共 2 頁 第 1 頁

1. 某工廠有甲、乙、丙、丁四台機器，個別開啟時其噪音分別為：75dB(A)、85dB(A)、88dB(A)及90dB(A)。請回答以下問題：
- 請問四台機器全開時總噪音為多少分貝?(5%)
 - 某勞工於此環境中工作，若依照我國勞工安全衛生法令之要求，此工廠勞工容許暴露時間為幾小時?(5%)
 - 每台機器噪音控制成本如下表所示，請問若要控制總音量在90分貝以內，最少要花多少錢?(5%)

機器	甲	乙	丙	丁
每分貝控制成本	5,000 元	4,000 元	3,000 元	2,000 元

2. 如果你現在被要求就新建火力發電廠與核能電廠進行決策，請問你會考慮哪幾種決策工具來進行決策?(5%) 如果你以環境的衝擊影響來進行決策，請問你要考慮哪些環境影響因子?(5%)
3. 請問個人呼吸防護器具有哪些種類? 選擇呼吸防護器具時應該要注意哪些事項?(10%)
4. 下圖是木柵焚化爐戴奧辛改善工程廢氣處理流程，請說明其中之靜電集塵器、濕式洗煙塔、觸媒反應塔等單元其處理原理為何?(5%) 各單元主要去除之污染物有哪些?(5%) 木柵廠使用此種流程組合去除戴奧辛其理由為何?(5%)



注意：背面有試題

系所別： 環境工程研究所 乙組 科目： 環境工程概論
丙組

- 5) Give a brief definition of the following terms and explain its significance in environmental engineering. (20%)
(A) flocculation
(B) desalination
(C) life-cycle assessment
(D) nitrogenous oxygen demand (NBOD)
(E) anaerobic digestion
- 6) (A) Decomposition of landfill materials can be thought of as a four-stage process. List those four stages. (4%)
(B) Draw a figure to illustrate how the composition of landfill gases changes with time and explain the trends. (6%)
- 7) Draw a schematic to show the major components that are commonly applied in a typical wastewater treatment facility that provides primary and secondary treatment using the activated sludge process. Then explain the major function of those components. (10%)
- 8) A coal-fired power plant has an efficiency of 36% with 15 percent of the waste heat being released to the atmosphere via stack and the other 85 percent is taken away by cooling water drawn from a nearby river. The output of the power plant is 1,200 MW_e. The river has an upstream flow of 320 m³/s and a temperature of 15°C. The specific heat of water is 4,184 J/kg°C.
(A) How many tons of coal will be consumed per day in this power plant if the energy content of coal is 25 kJ/g. (4%)
(B) If the maximum temperature rise allowed for cooling water is 10°C, calculate the minimum flow rate of cooling water. (3%)
(C) Calculate the river water temperature just after it receives the heated cooling water. (3%)

參考用