

國立臺北大學 107 學年度碩士班一般入學考試試題

系(所)組別：自然資源與環境管理研究所甲組
科目：環境科學與工程概論

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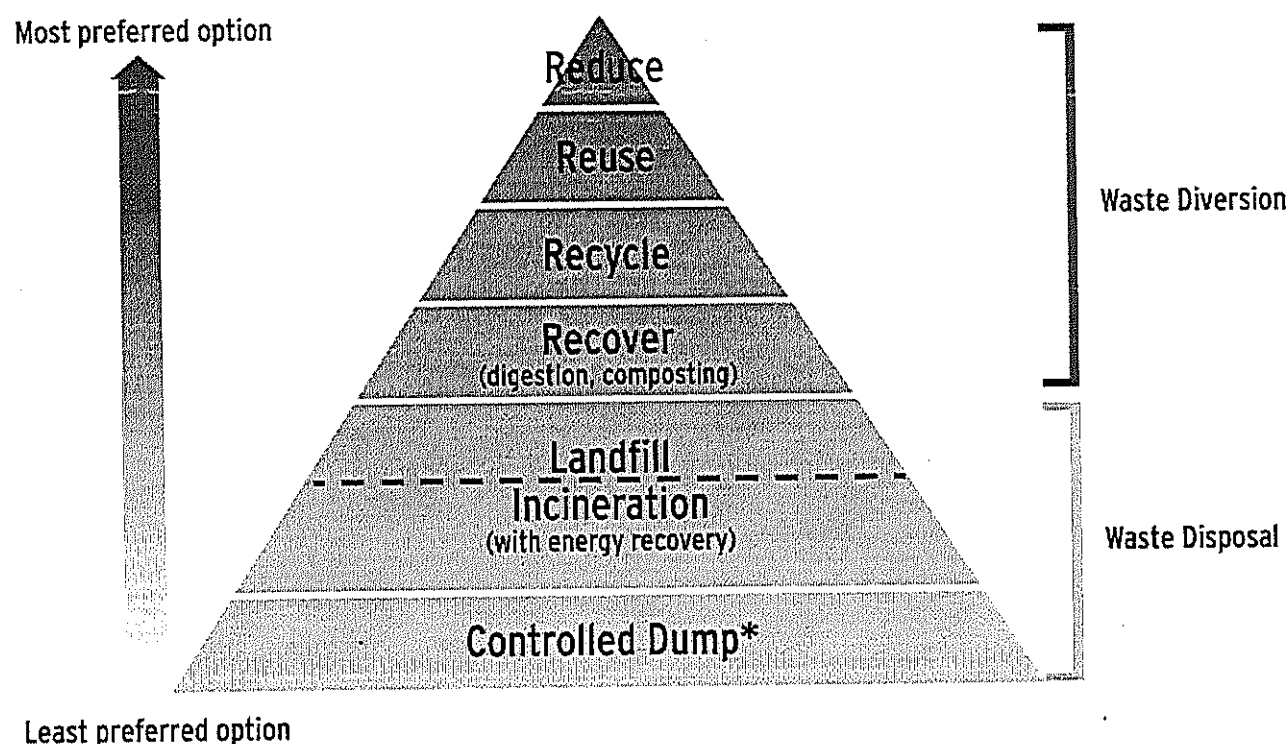
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一、(24 分) 行政院環境保護署 2017/12/31 發布當日空氣品質說明，其內容節錄如下：

環保署根據最新氣象資料研判，今(31)日受大陸冷氣團南下挾帶境外污染物(上海 31 日 8 時細懸浮微粒(PM2.5)為 146 微克/立方公尺)，今(31)日 6 時左右開始影響北部空氣品質，富貴角測站 PM2.5 濃度由 18 微克/立方公尺(6 時)，上升至 92 微克/立方公尺(9 時)，隨後將逐步由北至南傳送。西半部及馬祖、金門將達「紅色警示」，宜蘭及澎湖為「橘色提醒」，花東空品區為「普通」；由於霾害與沙塵接連影響……，雲嘉南空品區亦可能引發揚塵天氣，出現境外與本地污染疊加的效果……(<https://taqm.epa.gov.tw/taqm/tw/AqiNews.aspx?id=15>)

請回答以下問題：(1) 請定義何謂「境外汙染 transboundary pollution」；(2) 請比較說明「霾害」、「沙塵」與「揚塵」之相似與相異處。

二、(25 分) 請(1) 解釋下圖「廢棄物處理的分級 (Waste Hierarchy)」、(2) 說明堆肥 (composting) 理論，須包含堆肥化的最適條件並舉出實例。



*As a minimum, waste should be disposed at a "controlled dump," which includes site selection, controlled access, and where practical, compaction of waste. Incineration requires a complimentary sanitary landfill, as bottom ash, non-combustibles and by-passed waste needs to be landfilled.

(<http://siteresources.worldbank.org/INTURBANDEVELOPMENT/Resources/336387-1334852610766/Chap7.pdf>)

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三、(26 分) 國際能源署 (International Energy Agency, IEA) 自 1998 年起每年出版《世界能源展望》(World Energy Outlook, WEO)，最新發布《2017 世界能源展望》(WEO-2017)，列出四種情境 (scenario)，請先中譯以下內容(<https://www.iea.org/publications/scenariosandprojections/>) (http://www.iea.org/media/weowebiste/2017/Chap1_WEO2017.pdf)：

- **New Policies Scenario** of the World Energy Outlook broadly serves as the IEA baseline scenario. It takes account of broad policy commitments and plans that have been announced by countries, including national pledges to reduce greenhouse-gas emissions and plans to phase out fossil-energy subsidies, even if the measures to implement these commitments have yet to be identified or announced.

- **Current Policies Scenario** assumes no changes in policies from the mid-point of the year of publication (previously called the Reference Scenario).

- **450 Scenario** sets out an energy pathway consistent with the goal of limiting the global increase in temperature to 2°C by limiting concentration of greenhouse gases in the atmosphere to around 450 parts per million of CO₂.

- **Sustainable Development Scenario** is introduced for the first time in the WEO-2017 and takes a fundamentally different approach from those discussed above. While the Current Policies and New Policies scenarios start with certain assumptions about policies and see where they lead the energy sector, the Sustainable Development Scenario (as with the previous 450 Scenario) starts with a certain vision of where the energy sector needs to go and then works back to the present.

再請回答以下問題：(1) 請定義何謂「永續發展 sustainable development」；(2) 請說明「溫室氣體濃度 greenhouse-gas concentration」與「氣候變遷 climate change」之關係。

四、(25 分) (1) 請列出土壤透水性的主要決定因素；(2) 請列舉《土壤及地下水污染整治法》定義之 4 種「污染行為人之行為」。