1. 何謂 AQI (Air Quality Index)？請說明我國 AQI 內涵，如何計算 AQI，代表顏色，與人體健康影響關係。(15 分)

2. 何謂 $PM_{2.5}$？我國環保署設立監測站有關 PM2.5 監測包含手動採樣分析方法及自動連續監測方法，請說明其採樣監測原理。(15 分)

3. 總量管制為環境管理重要策略，請說明總量管制如運用哪些方法及步驟達成改善環境汙染，進而逐步符合環境品質標準。(15 分)

4. 請解釋名詞 "優養化" (Eutrophication)。(5 分)

5. Amsterdam (Netherlands) starts "Green Urine" campaign to convert urine into phosphorus fertilizers. Please address the following questions: First, why do you think Amsterdam wants to have "Green Urine" campaign to convert urine into phosphorus fertilizers? Second, please explain why we can convert urine into phosphorus fertilizers. Third, please explain how to convert urine into phosphorus fertilizers. Fourth, please plot a figure to explain the phosphorus cycle on earth, including natural pathway and pathway affected by humans. (25 分)

6. Populations of species can undergo different growth curves, including the J-shaped curve and S-shaped curve. Please plot population numbers against time to explain J-shaped curve and S-shaped curve. Please also explain the reasons why population growth will undergo J-shaped curve and S-shaped curve. (10 分)

7. What is net energy yield? Which energy resources have high net energy yield? Net energy yields are connected to the first and second laws of thermodynamics. Please explain the first and second laws of thermodynamics. (15 分)

試題隨卷繳回