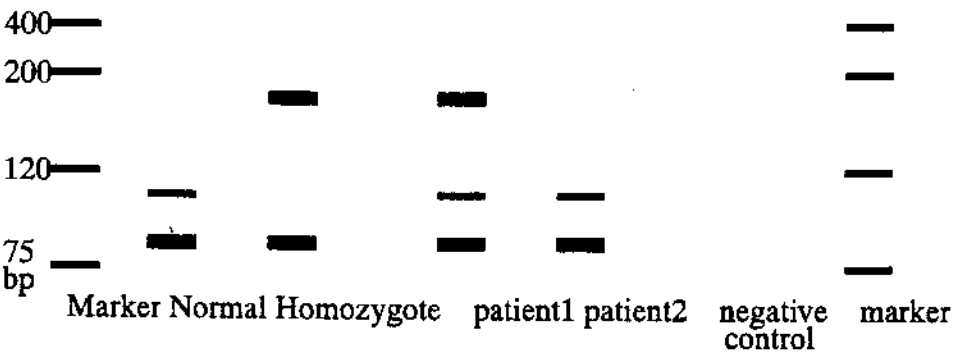
Question 1 (14%)

DNA is extracted from 4 mL of patient 1 whole blood and resuspended in 100 μL of hydration buffer, 1 μL of this DNA is added to 999 μL of water for absorbance spectrophotometry. If A_{260} = 2.0 and A_{280} = 1.18, what are the quality and quantity of the DNA sample?

Using this DNA for PCR/RFLP and the polyacrylamide gel result showed:



What can be said about the patient1 result? Why is the molecular size makers included in the gel?

Question 2 (15%)

何謂生物資訊學？請簡介生物資訊學的特性及其對生物醫學上的應用。

Question 3 (14%)

臨床檢驗常會使用螢光連結兔子抗人類免疫球蛋白 IgG 的抗體 (FITC conjugated rabbit anti-human IgG specific antibody) 請描述二種不同的方法及流程來製備這個試劑 (特別注意必須只和 human IgG 作用)。

Question 4 (15%)

生物科技的突飛猛進帶動各項分子醫學檢驗的檢查，就你所知在現階段不能大量使用這檢查的原因何在？

Question 5 (14%)

描述酵素免疫分析法 (enzyme-immuno assay) 的原理及實驗流程。

Question 6 (14%)

試述非放射性探針 (non-isotope probe) 在生物技術上的應用。

Question 7 (14%)

Please describe the current method(s) applied to identify single-nucleotide polymorphism (SNP) of a particular human gene.