

一、敘述胺基酸如何影響蛋白質之結構。(8%)

二、酵素抑制作用為調節酵素活性之一種方式，一些治療藥物便是利用抑制某些酵素活性而開發出來。舉例說明這類抑制劑是如何作用？並指出是屬於那一類抑制機制？(8%)

三、寫出下列維生素形成之 coenzyme 的名稱及其所參與之主要生化反應 (12%):

1) Niacin      2) Riboflavin      3) Folic acid

四、請由 glucose 的結構說明為什麼醣類完全氧化所得的能量(4 大卡/g)及貯存量比脂質少 (10%)?

五、請由分子結構說明 triglyceride, phospholipid 及 fatty acid 與水混合時，其在水溶液中可能的分子排列型式(10%)。

六、參與 fatty acid oxidation 的酵素 fatty acyl-CoA dehydrogenase, 其 coenzyme 是 FAD, 請問 fatty acyl-CoA 經此酵素作用後，可以產生多少 ATP? 為什麼?(6%)

七、說明下列名詞的意義或功能(20%)

1) telomerase 2) promoter & enhancer

3) snRNPs      4) RFLP

5) genomic library

八、敘述分泌性蛋白質之運送及分泌機轉(10%)。

九、敘述 DNA damage 時細胞如何進行下列修補作用 (10%)

a) base-excision repair 及 b) mismatch repair

十、何謂 GU/AG rule? 它如何參與 RNA splicing? 簡述之(6%)。

1. Give 5 examples of plant drugs serving as prototypes or models for other medicinals (e.g. natural: salicin and salicylic acid  
related semisynthetic: aspirin  
prototype-derived synthetic: ibuprofen) (15%)
2. Describe the classification of glycosides and give example of each one including their original botanical name, used part, active constituent name and its structure, medical use, respectively. (25%)
3. Describe 5 currently popular anticancer drug derived from natural medicinal plants and give their name, original botanical name, family name, used part, and structure, respectively. (25%)
4. Describe the classification of alkaloids and give example of each one including their original botanical name, family name, used part, active constituent name and medical use, respectively. (25%)
5. Describe the evaluation of drugs. (10%)