

私立臺北醫學院 八十九 學年度第 二 學期 期中 考試 命題 紙

系級	科目	授課教師	考試日期	學號	姓名
生二	生物化學	林銘瑄	90年6月12日第4節		

※①請注意本試題共 3 張。如發現頁數不足及空白頁或缺印，應當場請求補齊，否則缺少部份概以零分計。  
 ②每張試題卷務必填寫(學號)、(姓名)。

1. 請問用哪些實驗方法可以區分醛糖及酮糖？原理為何？
2. 為何利用膠體過濾法 (gel-filtration) 可以達到純化蛋白的目的？若有三個蛋白質分子量分別是單 270 kd, 90kd 及 10kd 經過 Sephadex G-75 膠體(分離範圍為 3 kd~80 kd)則請問其被流出的順序(先→後)如何排列？
3. 測定蛋白質的量時所用到的方法 Bradford method 其偵測原理為何？請計算下列未知樣品其蛋白質濃度為多少？

BSA 標準液 (ug/ml)	吸光值(OD 595nm)
2	0.27
5	0.52
10	0.98
15	1.43
未知樣品	0.64

4. 請問影響酵素活性的因素有哪些，請列出並解釋理由？
5. 何謂西方墨漬法 (western blot)？應用在哪一方面的研究上？

私立臺北醫學院 111 學年度第 二 學期 期中 考試 (命題) 題紙

系級	科目	授課教師	考試日期	學號	姓名
生二	生物實驗	施純明	10年6月12日第4節		
※①請注意本試題共 3 張。如發現頁數不足及空白頁或缺印，應當場請求補齊，否則缺少部份概以零分計。 ②每張試題卷務必填寫(學號)、(姓名)。					

**PART I: (10%)**

Referring to the experiment of PLASMID DNA EXTRACTION FROM *E. coli*, please select one of the following choices for Problems 1-5.

- A. Tris-Cl (in solution I)
  - B. SDS (in solution II)
  - C. NaOH (in solution II)
  - D. KOAc (in solution III)
  - E. isopropanol
- ( ) 1. Using for denaturing DNA
- ( ) 2. A detergent used to disrupt cell membrane of *E. coli*
- ( ) 3. Precipitation of the plasmid DNA
- ( ) 4. Maintain pH value while resuspending *E. coli*
- ( ) 5. Neutralization of the alkaline characteristics of NaOH

**Part II: (10%)**

In the experiment of polymerase chain reaction (PCR), please answer the statements in Problems 6-10.

- ( ) 6. Annealing temperature (1) 37 °C (2) 55 °C (3) 72 °C (4) 94 °C
- ( ) 7. Denature temperature (1) 37 °C (2) 55 °C (3) 72 °C (4) 94 °C
- ( ) 8. Polymerization temperature (1) 37 °C (2) 55 °C (3) 72 °C (4) 94 °C
- ( ) 9. Primers is not (1) a pairs of single strand DNA (2) a pairs of single strand RNA (3) complementary to template (4) used to control the specificity
- ( ) 10. The polymerase used was (1) *Taq* polymerase (2) polymerase I (3) polymerase II (4) polymerase III

**Part III: (10%)**

- ( ) 11. Identified the correct statement for plasmid DNA. (1) an extrachromosomal DNA (2) with supercoiled form (3) with open circular form (4) all correct above
- ( ) 12. After electrophoresis of DNA, the agarose gel was stained with (1) coomassie blue (2) blur dextrane (3) ethidium bromide (4) methyl orange
- ( ) 13. If you want to pipette 150µl solution, which micropipette is your best choice (1) 20p (2) 200p (3) 1000p (4) 5000p
- ( ) 14. The optimum reaction temperature for most restriction enzymes was (1) 4 °C (2) 37 °C (3) 42 °C (4) 72 °C
- ( ) 15. In our experiment, the direction of DNA electrophoresis was from (1) anode to cathode (2) cathode to anode

**Part IV: Please answer Y (yes) or N (no) (10%)**

- ( ) 16. Before agarose gel staining, you must wear plastic gloves.
- ( ) 17. In PCR experiment, the mineral oil is used to prevent H<sub>2</sub>O evaporation.
- ( ) 18. Mg<sup>++</sup> ion is a cofactor of EcoRI restriction enzyme.
- ( ) 19. Supercoiled form ran slower than nick circular form while electrophoresis by agarose gel.
- ( ) 20. In extraction of plasmid DNA experiment, you should discard the supernatant after addition of solution I, II, III and centrifugation.

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期 末 (試)

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生二	生化實驗	施純明	90年6月12日第4節		

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**Part V: (10%)**

In the experiment of polymerase chain reaction (PCR), please answer the statements in Problems 21-25.

- ( ) 21. SDS-PAGE is a (1)denature (2) non-denature (3) combined (4) complex gel system
- ( ) 22. SDS-PAGE is used for analysis of (1) DNA (2)RNA (3) protein (4) all correct above
- ( ) 23. Which one is an important compound for stacking? (1) Cl<sup>-</sup> (2) Gly (3) SDS (4) acrylamide
- ( ) 24. Which one is a neuron toxic compound when monomer? (1) mercaptoethanol (2) EtBr (3) SDS (4) acrylamid
- ( ) 25. Which one is used for staining protein gel (1) EtBr (2) coomassie blue (3)bromophenol blue (4) acrylamide