

國立交通大學試題紙

九十八學年度第一次
博士班資格考

科目：生理學

日期：99 年 1 月 29 日 第 1 頁 共 1 頁

請“✓”明 ✓不可看書 可看書

* 請將答案依題號順序寫入答案卷

答題時字跡需工整，否則不予計分。Write your answers legibly; otherwise you will get zero score.

1. Please use the blood glucose as the example to explain what the homeostasis is and the controlling system and regulatory mechanisms of homeostasis (10%).
2. (a) In step by step manner, please explain the molecular mechanisms of generating action potential (10%). (b) Please describe the molecular mechanisms of nerve block by local anesthetics (Lidocain and Procaine) Hint: inhibiting the conduction of action potential (2%).
3. Please describe the cerebral areas which involved in the motor control. (b) Please describe the pathophysiological mechanisms of Parkinson diseases and the treatments used in clinics. (13%)
4. Please describe 5 methods used to assess the brain functions (5%).
5. Please describe the control mechanism of blood pressure (including the neural, hormonal, cardiovascular and renal control mechanisms) (15%).
6. In step by step manner, please describe excitation-contraction coupling of the striate muscle. (b) Please describe the differences between the striate muscle and smooth muscle in the excitation-contraction coupling processing (10%)
7. Please describe the respiratory system responses to adapt changes in high altitude (mountain). (10%)
8. (a) What are acid-base imbalances? (b) Please describe four types of acid-base imbalances, their causal factors and methods used in the respiratory and urinary systems to compensate the imbalances of acid-base. (15%)
9. Please describe the long-term regulations of satiety (Hints: leptin and insulin) (10%).

◎請用深黑色鋼筆或原子筆出題

命題老師簽名：