

# 國立交通大學試題紙

科目：生理學

日期：101年1月18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. What is Hodgkin-Huxley Theory ? (5%)  
( Hint: Nernst equation  $E = 2.303(RT/F) \log(ION_{outside}/ION_{inside})$ )
2. Describe the process of motor nerve excitation and cause muscle fiber contraction in detail.(15%)  
( Hints:1. Action potential and ion change, 2. fate of neurotransmitters, 3. muscle fiber construction: Excitation-contraction coupling)
3. Comparison of Sympathetic and Parasympathetic nervous system.( 10%)  
( Hints: 1. Location, 2. Cell length, 3 .Neurotransmitter, 4. Functions)
4. A. What is the pathophysiology of arteriosclerosis? (10%)  
B. Lists five risk factors for arteriosclerosis. (5%)
5. Describe the cascade system of blood coagulation. (10%)
6. Use the blood glucose as an example and try to explain what the homeostasis is and describe its regulatory mechanism. (10%)
7. Describe the respiratory responses in high altitude adaption. ( Hints: respiratory rate, RBC, O2 affinity,) (10%)
8. What are the functions of Pancreas? (10%)
9. Describe the process of urine formation. (Hints: glomerular filtration, tubular reabsorption, tubular secretion) (10%)
10. Lists 5 methods for physiological status study of an organ. (5%)

◎ 請用深黑色鋼筆或原子筆出題

命題老師簽名：