問答題：每位考生必須回答規定的五題問題，每題 20 分；

甲組考生--必須回答 1 至 4 題，外加其餘題目中之任何一題(其餘題目作答超過一

題者，以得分最低的一題計算成績)

乙組考生--必須回答 5 至 8 題，外加其餘題目中之任何一題(其餘題目作答超過一

題者，以得分最低的一題計算成績)

丙組考生--必須回答 9 至 12 題，外加其餘題目中之任何一題(其餘題目作答超過

一題者，以得分最低的一題計算成績)

1. Compare the role of Ca^{++} ions (both extra-cellular and intra-cellular Ca^{++} ions) on cardiac muscle and skeletal muscle contraction during exercise.

2. List three hormones secreted by the kidney and describe in detail their physiologic functions they adopted.

3. Describe roles of rod cells and cone cells in retina on vision.

4. What would the following cardiovascular changes be observed during moderate exercise (such as jogging , swimming , or fast walking), explain reasons leading to these changes
   a. Cardiac output
   b. Pulse pressure
   c. Blood flow to heart and skeletal muscles
   d. Blood flow to viscera
   e. Total peripheral resistance

5. Term explanation: 20%
(1). Transposon (2). cDNA (3). cAMP (4). Allosteric enzyme (5). Salting out

6. Term explanation: 20%
(1). Consensus sequence (2). Gluconeogenesis (3). Hormone (4). Interferon (5). Noncompetitive inhibititor

7. Describe how ATP is formed in the proton-conducting ATP synthase. 20%

【背面還有試題】

8. Describe how protein is synthesized in ribosomes. 20%

9. In what sense is natural selection more "predictable" than genetic drift (20%)

10. Explain why a population that fits the logistic growth model increases more rapidly at intermediate size than at relatively small or large sizes. (20%)

11. Why might the most parsimonious tree not necessarily be the most accurate in representing evolutionary relationships among a particular group of species? (20%)

12. Which has greater influence on the development of behaviours, "nature" or "nurture"? Explain. (20%)