安徽师范大学

2016 年招收硕士研究生考题

科目名称：__普通遗传学__　科目代码：__939__

考生请注意：答案必须写在答题纸上，写在本考题纸上的无效！

一、名词解释（共10题，每题4分，共40分）

1. 性状

2. 基因型与表现型

3. 基因组

4. 基因互作

5. 母性遗传

6. 移码突变

7. 转座因子

8. 基因水平转移

9. 遗传漂变

10. 分子进化的中性学说

二、简答题（共4题，每题15分，共60分）

1. 在豌豆中，蔓茎（T）对矮茎（t）是显性，绿豆荚（G）对黄豆荚（g）是显性；圆豆子（R）对皱豆子（r）是显性。现有下列两种杂交组合，问它们后代的表型如何？
（1）TTGgRr×ttGgrr；
（2）TtGgrr×ttGgrr

2. 在番茄中，圆形果（O）对卵圆性果（o）为显性，单一花序（S）对复状花序（s）是显性。用纯和的复状花序圆形果植株与纯和的单一花序卵原形果植株杂交，F1 为单一花序圆形果，用双隐性品系对 F1 进行测交，测交后代有四种表型：

单一花序圆形果 23 株；单一花序卵圆形果 83 株；

复状花序圆形果 85 株；复状花序卵圆形果 19 株。

问：（1）这两对基因是否连锁？

（2）如果连锁其交换值是多少？

（3）根据这一交换值，说明有多少初级性母细胞在减数分裂时在 O—S 之间发生了交换？

（4）如果让子一代（F1）自交，下一代有几种表型，比例如何？

3. 染色体结构变异主要有哪些类型？请分别介绍其细胞学特征和遗传学效应。

4. 简述哈德-温格定律（Hardy-Weinberg law）的主要内容。

三、 论述题：（共 1 题，20 分）

1. 谈谈你对遗传、发育和进化之间相互关系的认识。

四、英文翻译（30 分）

Evolutionary genetics considers the causes of evolutionary change and the nature of variability in evolution. The methods of evolutionary genetics are critically important for the analysis and interpretation of the massive datasets on DNA sequence variation and evolution that are becoming available, as well for our understanding of evolution in general.

This book shows readers how models of the genetic processes involved in evolution are made (including natural selection, migration, mutation, and genetic drift in finite populations), and how the models are used to interpret classical and molecular genetic data. The material is intended for advanced level undergraduate courses in genetics and evolutionary biology, graduate students in evolutionary biology and human genetics, and researchers in related fields who wish to learn evolutionary genetics. The topics covered include genetic variation, DNA sequence variability and its measurement, the different types of natural selection and their effects (e.g. the maintenance of variation, directional selection, and adaptation), the interactions between selection and mutation or migration, the description and analysis of variation at multiple sites in the genome, genetic drift, and the effects of spatial structure. The final two chapters demonstrate how the theory illuminates our understanding of the evolution of breeding systems, sex ratios and life histories, and some aspects of genome evolution.