

安徽师范大学

2017年硕士研究生招生考试初试试题

科目代码: 939

科目名称: 普通遗传学

一、名词解释 (共 10 题, 每题 4 分, 共 40 分)

- 1、杂种优势:
- 2、伴性遗传:
- 3、F 因子:
- 4、外显子:
- 5、同源染色体:
- 6、二倍体:
- 7、转化:
- 8、测交:
- 9、顺式元件:
- 10、剂量效应:

二、简答题 (共 5 题, 每题 12 分, 共 60 分)

- 1、番茄缺刻叶是由 P 控制, 马铃薯叶则决定于 p; 紫茎由 A 控制, 绿茎决定于 a。把紫茎马铃薯叶的纯合株与绿茎刻叶纯合株杂交, F₂ 代得到 9:3:3:1 的分离比。如把 F₁ 代 (1) 与紫茎马铃薯叶亲本回交, (2) 与绿茎缺刻叶亲本回交, 以及 (3) 用双隐性植株测交时, 其下代表现型比例各如何?
- 2、一个父亲为色盲的正常女人与一个正常男人婚配, 预期其子女的类型及比率如何?
- 3、请简述证明 DNA 是生物的主要遗传物质的试验——噬菌体的侵染与繁殖。
- 4、请叙述某个基因编码序列发生单个碱基突变可能导致的氨基酸序列变化。
- 5、减数分裂的遗传学意义是什么?

三、论述题 (共 1 题, 20 分)

- 1、论述“基因”概念的发展。

四、英译汉 (30 分)

The central dogma has also been described as "DNA makes RNA and RNA makes protein," originally termed the sequence hypothesis and made as a positive statement by Crick. However, this simplification does not make it clear that the central dogma as stated by Crick does not preclude the reverse flow of information from RNA to DNA, only ruling out the flow from protein to RNA or DNA. Crick's use of the word dogma was unconventional, and has been controversial. The dogma is a framework for understanding the transfer of sequence information between information-carrying biopolymers, in the most common or general case, in living organisms. There are 3 major classes of such biopolymers: DNA and RNA (both nucleic acids), and protein. There are $3 \times 3 = 9$ conceivable direct transfers of information that can occur

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between these. The dogma classes these into 3 groups of 3: 3 **general transfers** (believed to occur normally in most cells), 3 **special transfers** (known to occur, but only under specific conditions in case of some viruses or in a laboratory), and 3 **unknown transfers** (believed never to occur). The general transfers describe the normal flow of biological information: DNA can be copied to DNA (DNA replication), DNA information can be copied into mRNA (transcription), and proteins can be synthesized using the information in mRNA as a template (translation).

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