

一、配合題：將最適合左邊解釋的名詞從右邊選出(20 分，每題兩分)

- | | |
|---|--------------------------|
| 1. an organism that has reproductive organs normally associated with both male and female sexes | A. Norm of Reactions |
| 2. developmental change in the timing of events, leading to changes in size and shape | B. Linkage equilibrium |
| 3. The set of phenotypes that genotype is capable of expressing under different environmental conditions | C. Parsimony |
| 4. a technique in molecular evolution that uses fossil constraints and rates of molecular change to deduce the time in geologic history when two species or other taxa diverged | D. Molecular systematics |
| 5. the analysis of hereditary molecular differences, mainly in DNA sequences, to gain information on an organism's evolutionary relationships | E. Heterozygosity |
| 6. measurement of the average percent of loci that are heterozygous in a population | F. Heterotopy |
| 7. genetic variation that does not confer a selective advantage or disadvantage | G. Hermaphrodite |
| 8. a character shared by a set of species but not present in their common ancestor | H. Non-coding pseudogene |
| 9. pertaining to a group of taxa that consists of a common ancestor and all of its descendants | I. Phylogeography |
| 10. a discipline that deals with the spatial arrangements of genetic lineages, especially within and among closely related species | J. Genetic drift |
| | K. Dioecious |
| | L. Neutral selection |
| | M. Co-option |
| | N. Diploidy |
| | O. Heterochrony |
| | P. Evo-devo |
| | Q. Balancing selection |
| | R. Homology |
| | S. Monophyletic |
| | T. Radiometric dating |
| | U. Evolvability |
| | V. Homoplasy |
| | W. Molecular clock |

二、簡答題 (40 分)

- 請解釋演化學者重建演化樹時，是以特定分類群之間擁有共同祖徵 (shared ancestral character)? 還是擁有共同衍徵 (shared derived character)? 來確立歸群該分類群的正确性 (5 分)
- 解釋如何估算無性繁殖的植物其生存相對適應度 (relative fitness) (5 分)?
- 論述當基因產生複製 (gene duplication) 後，這些基因複份間之後可能的演化命運? (5 分)
- 利用演化教科書中所舉的經典範例，如花對稱性 Floral symmetry genes 或花器形成基因 Floral homeotic (ABC model) genes 的同源異性轉變(homeotic transformation)，來解釋當今演化發育生物學 evo-devo 所關注的主要議題是什麼? (8 分)
- 如果一種有紅、藍、黃花色的植物，分布在某山谷的小族群其花色全部僅存藍色，請問該如何測試分辨小族群個體固定成藍色，是因為基因漂變? 還是天擇造成的結果? (7 分)
- 請闡述 Group Selection, Individual Selection, Gene Selection 之間的異同 (10 分)

三、解釋名詞 (40 分，每題 4 分)

- Kin selection
- Neo-Darwinism
- Neutral selection
- Evolutionary stable strategy (ESS)
- Convergent evolution
- Reciprocal altruism
- Game theory
- Dual inheritance theory
- Parent-offspring conflict
- co-evolution

試題隨卷繳回