

一、請解釋以下名詞，並儘可能說明其現象或原理，以及其影響或重要性，必要時請舉例說明。答題時請將英文專有名詞抄寫至答案紙再進行答題。(1-12 題每小題 3 分，13-22 題每小題 5 分，共 86 分)

1. Cation exchange capacity
2. Crassulacean acid metabolism
3. Cyanide-resistant respiration
4. Hypersensitive response
5. Ion pumps on membrane
6. Kranz leaf anatomy
7. Microarray
8. Model organisms
9. Nitrate reductase
10. Photosynthetically active radiation
11. Post-illumination outburst of carbon dioxide
12. Sink-to-source transition of a leaf
13. Embryogenesis
14. Programmed cell death
15. Photomorphogenesis
16. Polar transport
17. Chilling requirement
18. Photoperiodism
19. Vernalization
20. Etiolation
21. Temperature compensation point
22. Cold acclimation

二、以下文字節錄整理自 Madlung A. 2010. Genome organization and gene expression. 請將之完整地翻譯為中文。(4 分)

One dominant type of repetitive DNA within the heterochromatic regions of the genome is the transposon. Transposons, or transposable elements, are also known as "jumping genes" because some of them have the ability to insert a copy of themselves in a new location within the genome. There are two large classes of transposons: retrotransposons and the DNA transposons. These two classes are distinguished by their mode of replication and insertion into a new location.

三、請接續上題文字，進行延伸說明。至少包括 retrotransposons 與 DNA transposons 之不同處、transposon 對植物基因表達之可能影響、以及植物如何調整 transposon 之表達？(10 分)

試題隨卷繳回