

請注意, 試卷以橫式作答, 不必抄題, 但須標明題號。

甲. 簡答題: 三言兩語, 切題為要!

1. Mitosis and meiosis 在人體之功能為何? (2%)
2. 依 fluid-mosaic model 膜之構造, 近細胞質面與另一面化學組成上, 有何差別? (2%)
3. 試問下述實驗方法、技術或儀器各用於研究哪類問題? (10%)
Lederberg's replica-plating method, Meselson-Stahl experiment, Hershey-Chase experiment, freeze-fracture technique, SQUID.
4. 試問下述原理或假說各屬生物學那一領域之成果? (12%)
Mendel's principles, Hardy-Weinberg principle, Gause's principle, Hamilton's hypothesis, pressure-flow hypothesis, Darwinian theory.
5. ①生物學研究用材料為何需要鑑定 (identification). (2%)
②下列各分類群 (taxa) 是研究上常用材料, 試依 Whittaker 分類系統將其界 (kingdom) 名寫出. (17%)
Acetabularia, Pisum sativum, Drosophila, T_4 bacteriophages, Escherichia coli, Neurospora, Paramecium.

乙. 繪圖題

1. 圖示 a reflex arc (7%)
2. 圖示一玉米種子縱切面觀, 另簡述 gibberellin 如何促進胚之生長. (10%)

丙. 術語識別題: 以簡明敘述, 區分下列各對生物學術語. (48%)

phenetic/cladistic, SEM/TEM, poikilotherm/homeotherm, antibody/antigen, codon/anticodon, r-selected/k-selected, apical meristem/lateral meristem, allopatric speciation/sympatric s., exon/intron, C_3 plant/ C_4 plant, parenchyma/collenchyma, genotype/phenotype, gills/lung, niche/habitat, lichen/mycorrhizae, insulin/glucagon.