

※ 注意：請於試卷內之「非選擇題作答區」依序作答，並應註明作答之大題及小題題號。

I. Explain and distinguish the following terms: (每題 3 分，共 45 分)

1. protostele and siphonostele
2. phycocyanin and phycoerythrin
3. autotrophs and heterotrophs
4. plasmogamy and karyogamy
5. isogamy and oogamy
6. homothallic and heterothallic
7. monoecious plant and dioecious plant
8. crozier and clamp connection
9. ascocarp and basidiocarp
10. protonema and gametophyte in mosses
11. eusporangiate and leptosporangiate sporogenesis
12. sporophytic self-incompatibility and gametophytic self-incompatibility
13. monosporic embryo sac and tetrasporic embryo sac
14. microphyll and megaphyll
15. microsporophyll and megasporophyll

II. Answer the following questions: (共 55 分)

1. Please describe the three types of life cycle in algae. And give one example for each type. The meiosis stage and the dominant generation must be indicated. (10%)
2. Draw and label the sporophytes of *Riccia*, *Marchantia*, *Anthoceros* and *Polytrichum*. What is the evolutionary tendency of these structures? (10%)
3. Draw and compare the gametophyte of *Chlamydomonas*, *Polytrichum*, *Lycopodium*, *Pinus*, and *Lilium*. What is the evolutionary tendency of these organisms? (10%)
4. Describe the life cycle of *Puccinia graminis* (wheat rust). Give the number of chromosome set for each stage. (10%)
5. Describe and draw the microsporogenesis and male gametogenesis of 3-celled pollen in angiosperms. (5%)
6. Please draw the process of the development of fruit in angiosperms. (5%)
7. Draw or describe the evolution of seeds. (5%)

試題隨卷繳回