

國立嘉義大學 97 學年度

農學研究所博士班招生考試試題

科目：農學專業英文

請將下列短文翻譯成中文

I. (25%)

Cold temperatures are the stimulus responsible for converting biennial plants to the adult condition, in the process of vernalization. The site of perception is the shoot apex itself; if it is cooled while the rest of the plant remains warm, vernalization occurs. But if the rest of the plant is cooled while a small heater keeps the apex warm, no vernalization occurs. Presentation time is as short as 1 day in some plants.

II. (25%)

Although artificial selection improves our cultivated plants, it can have disastrous effects on natural populations. For many species, individual specimen plants are valuable commercially, such as orchids and cacti with particularly beautiful shapes or flowers. In many cases, it is easier and cheaper to collect these plants from natural populations than to cultivate them in nurseries. Extensive plant collecting actually threatens some species with extinction, but more often it has the very serious impact of removing most of the healthy plants from a population.

III. (25%)

Skeletal muscle has a very complex organization, in part to allow muscle to efficiently transmit force originating in the myofibrils to the entire muscle and ultimately to the limb or structure that is moved. A relatively thick sheath of connective tissue, the epimysium, encloses the entire muscle. In most muscles, the epimysium is continuous with tendons that link muscles to bones. When skeletal muscle cells are viewed under a microscope, very regular transverse striations are seen. These striations are caused by specialized contractile organelles, the myofibrils, found in

the muscle. The striations arise from alternating, protein dense A-band and less dense I-band within the myofibrils.

IV. (25%)

Tobacco smoke irritates the cells lining the bronchi, inhibiting or destroying their cilia. Frequent coughing—common in heavy smokers—becomes the respiratory system's attempt to clear mucus no longer moved by the cilia. Smoke's noxious particles also kill macrophages, defensive cells that reside in the respiratory tract and engulf fine particles and microorganisms. Thus, smoking disables the normal cleansing and protective mechanisms of the respiratory system, allowing even more toxin-laden particles to reach the lung's delicate alveoli.