* 請按順序作答

一、解釋名詞（每題 5 分，共 20 分）

1. Ecosystem services
2. The Suess Effect
3. Biodiversity Hotspots
4. Wetland

二、問答題（共 80 分）

1. 請說明氣候變遷的成因，並請從生物體、族群、群聚、生態系等階層，說明對於生態的衝擊。（15 分）

2. 請從陸域生態系和水域生態系，分別說明影響其生產力的影響因子，以及其影響方式。（15 分）

3. Why might a manger of an exploited population, such as a commercially important fish, want to keep fish population size near one-half K (carrying capacity) and not much lower? (6 分).

4. In general, herbivores annually consume less than one-sixth the global net primary production. Why don't herbivores eat everything, that is, why the world is still green? (6 分)

5. Population, community, and ecosystem ecologists study structure and process. However, the focus on different natural characteristics. Contrast the important structures and processes in a forest from the perspectives of population, community, and ecosystem ecologists. (12 分)

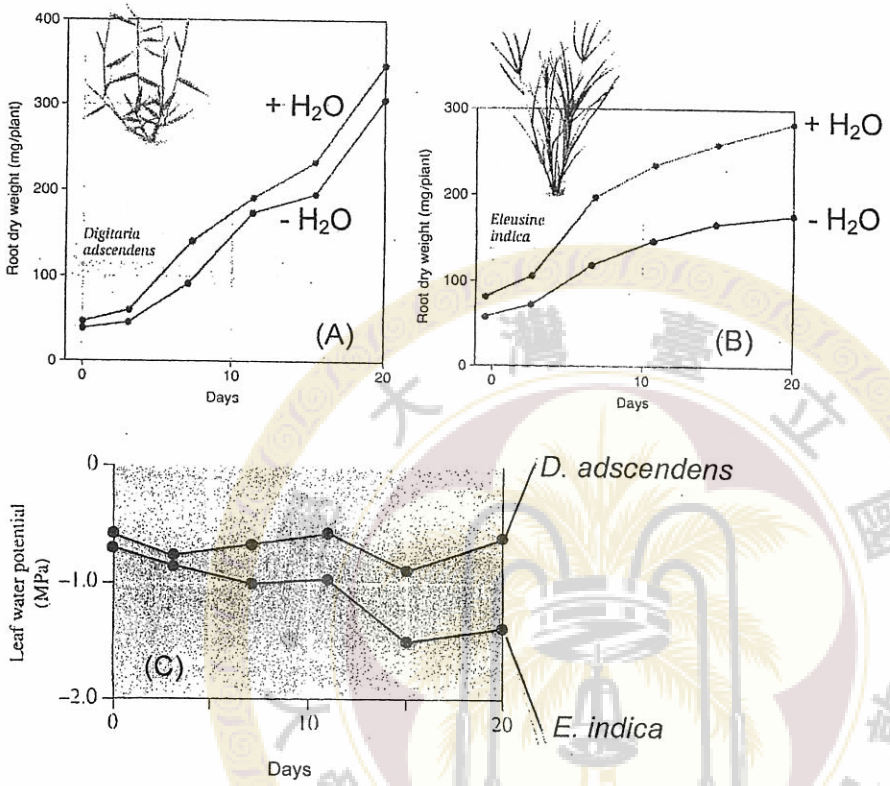
6. Succession seems to lead to predictable changes in community and ecosystem structure. Predict the characteristics of a frequently disturbed community/ecosystem versus a largely undisturbed community/ecosystem. What do your predictions suggest about a future biosphere increasingly disturbed by a growing human population? How does the intermediate disturbance hypothesis figure into your answer? (12 分)

7. Y. M. Park was interested in understanding the mechanisms allowing the grass *Digitaria adscendens* to grow on coastal sand dunes, which are an extremely arid environment, where *Eleusine indica* could not. Park collected seeds of both species and germinated them in moist sand and maintained the seedlings in grass tubes. Park watered all tubes with a nutrient solution every 10 days for 40 days. He then established two treatments for each species: continue watering (+ H_2O) for 19 days and leave unwatered (-H_2O). The roots from a sample of each treatment were measured for length, through the glass tubes, then removed and weighted (Fig. 1 A and B). The leaf water potentials of **unwatered** plants were also measured during the treatment period (Fig.1C). The data are shown in the following figure (Fig. 1).
What are the question and hypothesis of the study? Explain the results. (14 分)

見背面

國立臺灣大學101學年度碩士班招生考試試題

Fig. 1



試題隨卷繳回