單選題，每題4分

1) Poikilotherms_____
　　A) are warm-blooded.
　　B) can regulate their internal body temperature with ability to thermogenesis.
　　C) include mammals and birds.
　　D) have body temperatures that vary as environmental temperatures vary

2) The process of photosynthesis in plants occurs in specialized cells within the leaf called _____ cells.
　　A) mesophyll　B) stomata　C) epidemic　D) cuticle　E) respiration

3) Which of the following is considered a plant adaptation to low moisture environments?
　　A) allocation of energy to roots
　　B) less efficient photosynthetic pathway
　　C) increased leaf longevity
　　D) increased photosynthetic activity

4) Terrestrial animals satisfy their water needs via eating, drinking, and .....
　　A) basking
　　B) hibernation
　　C) metabolism
　　D) torpor

5) 卓逸民老師研究人面蜘蛛如何捕食昆蟲及其互動，請問這是那方面的研究
　　A) physiological ecology
　　B) population ecology
　　C) community ecology
　　D) Ecosystem ecology

6) 林宜靜老師研究墾丁森林小苗組成及動態，請問這是那方面的研究
　　A) physiological ecology
　　B) population ecology
　　C) community ecology
　　D) Ecosystem ecology

7) The basal metabolic rate per unit of body mass is highest in a
　　A) large endotherm.
　　B) small endotherm.
　　C) large ectotherm.
　　D) small ectotherm.

8) The surface-volume ratio of a cube (length is 3 cm, width is 3 cm and height is 3 cm) is
　　A) 1
　　B) 2
　　C) 0.5
　　D) 5

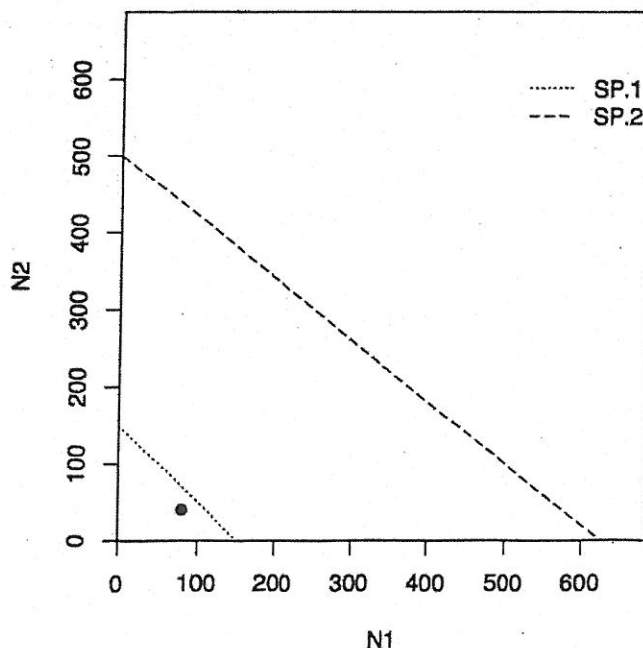作答前請先檢查試題頁數、頁次及考試科目是否正確，如有缺損或印刷不清等，應即舉手請監試人員處理，繳卷時試題須繳回。

問答題

1.最近台灣獼猴危害農作物之事如火如荼，就動物族群生態內涵而言請回答下列問題：

A.通常危害動物的生活使策略(r & K selection)較偏向何種選擇策略?(4分)

B.通常對人類種植的農林作物產生危害的野生動物，就動物本身的族群而言，其發生的原因是甚麼?(6分)

C.從動物族群經營管理(population management)觀點切入，該如何控制動物的危害情形?(6分)

D.以最大永續獲取量(maximum sustainable yield)來狩獵管理動物族群，其主要原理是指動物族群在何時具有最大增長量?(6分)

E.有研究報告指出因人類餵食行為對於母猴生殖表現會造成族群增長的影響，請問是哪些影響?(6分)

2.台灣石虎瀕臨生存危機，為了保育必須了解其生命表(life table)現況，請問要完成石虎的生命表所需要的參數有哪些? 生命表對於石虎保育有何助益? (10分)

3. Compare and contrast Batesian mimicry and Müllerian mimicry. Provide one example for each of the two types of mimicry. (10 分)

4. According to the Lotka-Volterra model of competition between two species, draw the trajectory of the two populations in the following figure. At the end of the simulation, what are the population sizes for each of the two species (SP.1 AND SP.2) (10 分)

5. Use equations to describe the relationships between Gross Primary Productivity (GPP), Net Primary Productivity (NPP), Autotrophic Respiration (Ra), and Net Ecosystem Productivity (NEP). Which one of the above provides the best measurement for carbon sequestration (碳吸存) in a terrestrial ecosystem. Explain why. (10 分)