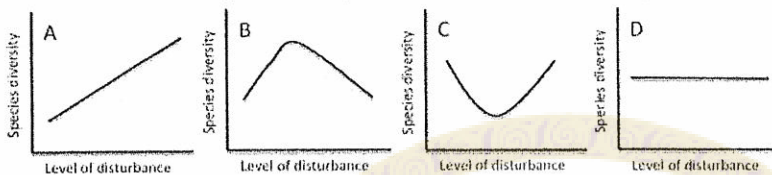


一、選擇題(每題3分,共30分) ※ 本大題請於試卷內之「選擇題作答區」依序作答。

- Separated subpopulations interconnected by the movement of individuals are called
A) genets B) ramets C) metapopulations D) ecogroups.
- Which of the following is NOT an assumption of logistic growth: $dN/dt=rN(N-N/K)$?
A) r and K remain constant B) the maximum population growth rate occurs when $N=K/2$
C) relationship between density and rate of change is linear D) resources are unlimited
- In theory, when two species are competitors for the exact same resources, _____ will result.
A) competitive exclusion B) coexistence
C) initial competition followed by mutualism D) parasitism
- Which is the following describing intermediate disturbance hypothesis?



- $dV/dt=rV-cVP$ and $dP/dt=acVP-dP$ describe the predator (P) and prey (V) interaction. What happens to the prey population when predators are absent? When you set $P = 0$, then the prey population
A) goes extinct B) grows exponentially C) grows logistically D) remains in equilibrium
- Which of the following is not an important greenhouse gas?
A) carbon dioxide B) nitrogen C) methane D) CFCs
- You are studying an organism with a life span of 3 months. The best approach for obtaining the best life table information on this species would be to use age intervals comprised of
A) hours B) days C) months D) years
- Species with different evolutionary histories that resemble one another are said to have undergone
A) convergent evolution B) disruptive selection C) coevolution D) soft selection
- Which of the following is not an adaptive advantage for larger body size?
A) less susceptible to predation B) shorter generation time
C) more opportunities to reproduce successfully D) longer lived
- Speciation that occurs through the movement of individuals of a population to a new habitat while not being geographically isolated from the parent population is called
A) parapatric B) sympatric C) disruptive D) allopatric

二、名詞解釋(每題4分,共20分)

- Biological magnification
- Iteroparous
- Phenology
- Amensalism
- Carrying capacity

三、簡答題(每題10分,共50分)

- Describe gamma, alpha and beta diversity?
- The instantaneous growth rate (r) of a human population on an isolated island in the Pacific Ocean is 0.05 per year. The current population size N_0 is 1,100. If the conditions remain constant and food are always sufficient, how long will it take before the population has increased to 3,000? a) Write down the differential equation that describes the population growth. b) Write up the equation that can solve for how many years are needed to reach the population of 3,000. (You only need to set up the equation and you do not need to solve it).
- What is the difference between a functional and a numerical response?
- Define the acronyms GPP, NPP and NEP. Explain, through either equations or words, how they are related to one another.
- A species of cat that consumes mice has a gross production efficiency of 10%. Mice production is 100 Kcal/m²-yr, and the cats consume approximately 13 Kcal/m²-yr of mice. Calculate the ecological efficiency of energy transfer between mice and cats.

試題隨卷繳回