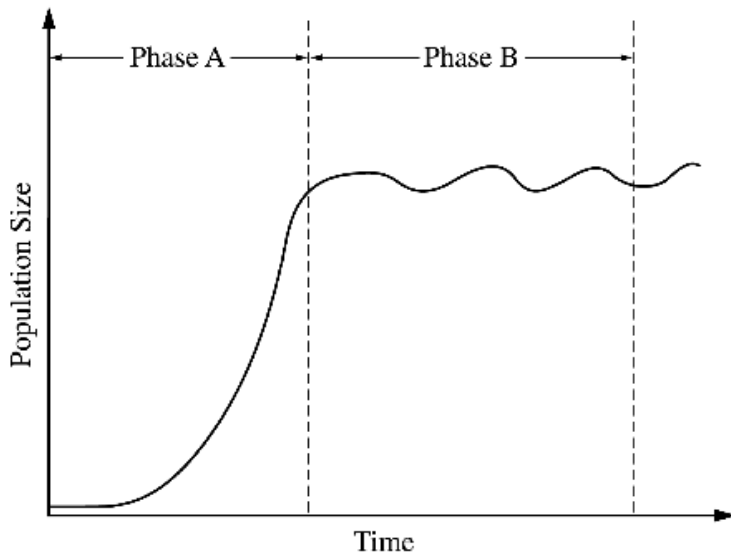


Ecology Unit Free Response Questions

1. Many populations exhibit the following growth curve:



(a) **Describe** what is occurring in the population during phase A.

(b) **Discuss** THREE factors that might cause the fluctuations shown in phase B.

(c) Organisms demonstrate exponential (r) or logistic (K) reproductive strategies.

Explain these two strategies and discuss how they affect population size over time.

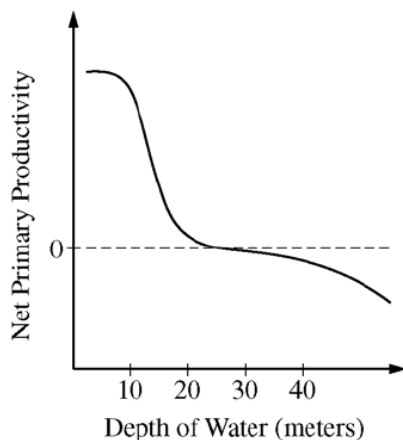
2. Consumers in aquatic ecosystems depend on producers for nutrition.

(a) **Explain** the difference between gross and net primary productivity.

(b) **Describe** a method to determine net and gross primary productivity in a freshwater pond over a 24-hour period.

In an experiment, net primary productivity was measured, in the early spring, for water samples taken from different depths of a freshwater pond in a temperate deciduous forest.

NET PRIMARY PRODUCTIVITY IN A FRESHWATER POND ECOSYSTEM DURING SPRING



(c) **Explain** the data presented by the graph, including a description of the relative rates of metabolic processes occurring at different depths of the pond.

(d) **Describe** how the relationship between net primary productivity and depth would be expected to differ if new data were collected in mid-summer from the same pond. Explain your prediction.