

i) What is this technique of pest control called? ii) Specify a, b & c in the chart given.

Questions for Self Evaluation

1. A four years old girl suffered from ADA deficiency. She was cured by inserting a correct gene into her. a) what is this process called? b) In which cells are the genes introduced?
2. What is the other name of mobile genetic elements?
3. Differentiate between insulin and pro insulin?
4. Explain down stream processes?
5. Differentiate exonuclease and endonuclease.
6. Expand the term PCR.
7. What is its importance in genetic engineering?

CHAPTER 13

Organisms and Populations

S.NO	CHAPTER	Concepts	Degree of imp.	Ref. NCERT text book.: page nos	Common errors
13.	Organisms and Populations	1. Organisms and its Environment (i) Major Abiotic Factors (ii) Responses to Abiotic Factors (iii) Adaptations 4. Populations:- (v) Population Attributes (vi) Population Growth (vii) Life History variation (viii) Population interactions	** ** *** *** *** * **	Page -221-223 NCERT Fig. 13.3 Page 223-225 Page 225-226 Fig. 13.4 Page 226-228 Fig. 13.5 Page 228-231 Page 231-232 Table 13.1 Page 232-238	Eurythermal & stenothermal Conformers, Regulators Distinction between Expanding, stable, declining population. Distinction between Exponential and Logistic growth curve. Distinction between commensalisms and Amaensalism.

DEFINITIONS

- **AMENSALISM** :- Interaction in which one species is harmed whereas the other one is unaffected.
- **CARRYING CAPACITY** :- Maximum size of population that can be sustained by the environment.

- **COMMENSALISM** :- Interaction in which one species gets benefits and other is neither harmed nor benefited.
- **CONFORMERS** :- Majority of animals and nearly all plants which cannot maintain constant internal environment.
- **EURYTHERMAL** :- the organisms that can tolerate and thrive in a wider range of temperature.
- **EXPONENTIAL GROWTH** :- Unimpeded growth of a population in an environment with abundant resources.
- **LOGISTIC GROWTH** :- Growth of a population in an environment with limited resources (initial lag phase, phase of acceleration and finally stationary phase).
- **MORTALITY** :- The number of deaths in a population during a given period.
- **NATALITY** :- The number of births in a population during a given period.
- **POPULATION DENSITY** :- The number of individuals of a species present in per unit area at given time.
- **REGULATORS** :- The organisms which maintain homeostasis (constant body temperature and osmotic concentration) by physiological means.
- **STENOTHERMAL** :- The organisms that are restricted to narrow range of temperature.

ASSIGNMENTS

LEVEL 1

- 1 Why is thermoregulation more effectively achieved in larger animals than smaller ones?
- 2 What are osmoconformers?
3. What are the 2 forms of population growth?
4. What type of interaction is shown by sparrow eating the seeds?
5. How are eurythermal animals differ from stenothermal?
6. Name the four levels of organization that are studied in ecology.
7. Give any one example of brood parasitism.
8. Write an expression, which gives the change in population size after a given time.

LEVEL 2

1. Mention the adaptations the mammals of colder areas have.
2. When does a population growth curve assume J-shape?
3. What is Gause's Competition Exclusion Principle? Give 1 example.
4. How is cactus adapted to survive?
5. Lichen and mycorrhiza are very important examples of mutualism.
 - (i) Define mutualism.
 - (ii) Write the names of components of both.
 - (iii) What is the benefit of mutualism to both of them.
6. What type of morphological and physiological defences have been evolved by plants.

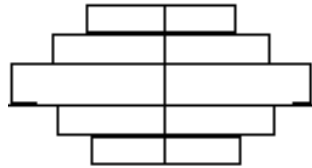
LEVEL 3

1. Mr. Ram on a trip to Rohtang Pass Suddenly experienced heart Palpitations, Nausea, fatigue etc on reaching the destination. Suggest the reasons for his sudden deterioration of health and also state whether his body will withstand this problem if he stays there for long and how?

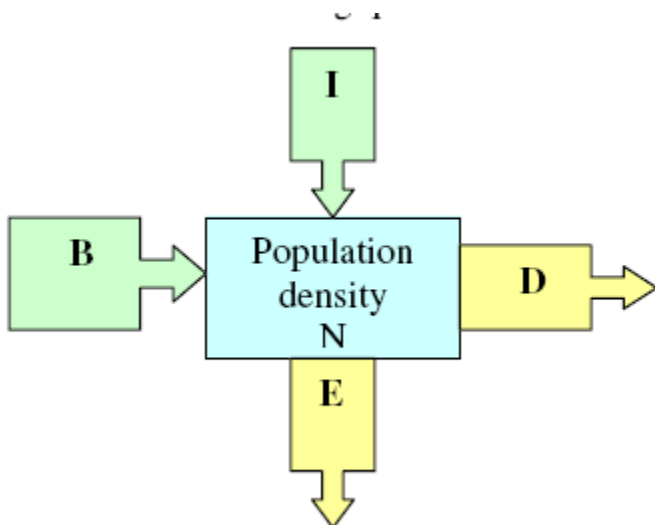
2. Observe the following equation :

$$\frac{dN}{dt} = rN \left[\frac{K-N}{K} \right]$$

- i) Name the population growth curve.
- ii) What does N, r and K represent?
- iii) What type of growth status the following pyramid represents.



3. Anand on a visit through an under the ocean aquarium found that many sea anemones are attached to hermit crab shells, sucker fisher attached to the ventral surface of sharks and clown fish living among the sea anemones. He wondered whether all these associations are of the same type; can you help him to arrive at the correct conclusion.
4. Abingdon tortoise in Galapagos Island became extinct with in a decade after goats were introduced on the island. Why? What could be principle behind this situation?
5. An orchid plant is growing on the branch of a mango tree. How do we describe this interaction b/w orchid and mango tree?
6. Observe this diagram and answer the following question



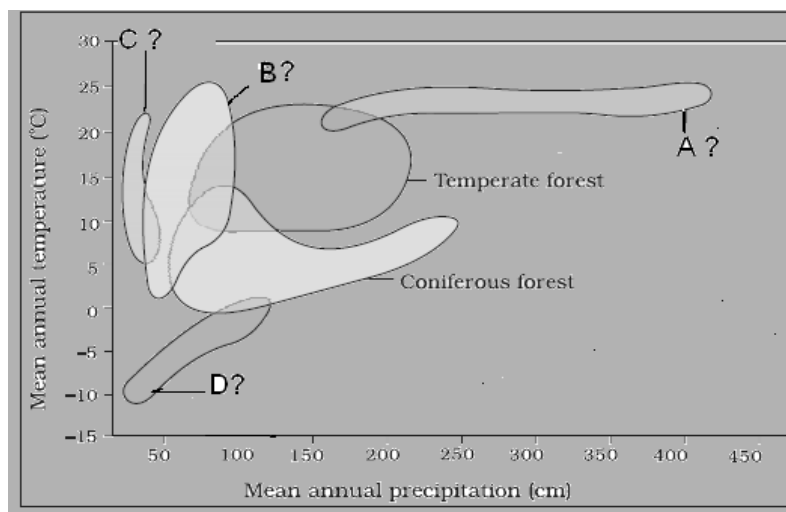
- a. What is the terminology for B& E.?
- b. If B + I is more then D + E then what will happen to population density.

(c) What are the most important factors which influence a population density of an area under normal condition ?

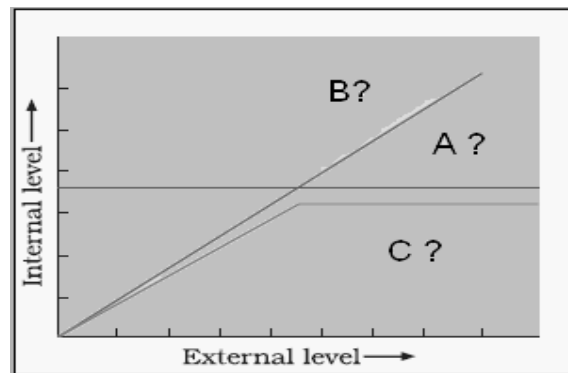
(d) If a habitat is being colonised recently then which factor contribute more to the population growth

QUESTIONS FOR SELF EVALUATION

1. An orchid plant is growing on the branch of a mango tree. How do we describe this interaction between orchid and mango tree?
2. The population of tigers in a forest becomes zero, due to uncontrolled hunting. What would be the long term effects of this situation in the forest?
3. Identify the biome distribution with respect to annual temperature and Precipitation from the following graph. Answer A, B, C & D.

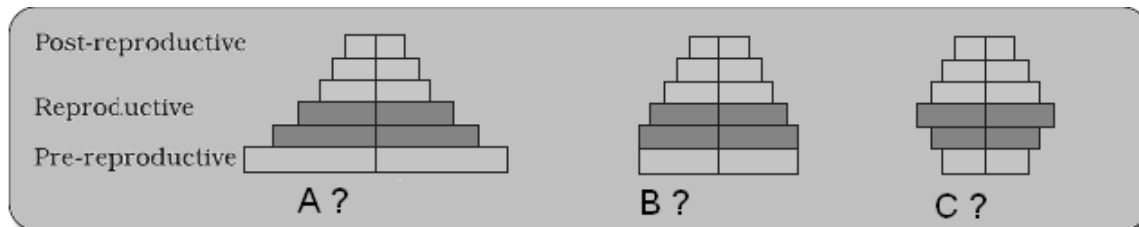


4. The following graph represents the organismic response to certain environmental condition.
 - (i) which one of these, A , B , C depicts conformers?
 - (ii) How do A , B differ from each other with reference to homeostasis?
 - (iii) What does C of graph depict?
 - (iv) Mention the category to which man belongs.



- (i) Men Study the given age profiles related to human population and answer the following questions.

- (ii) tion the names given to A , B , C kinds of age profiles.
- (iii) Which one of these is ideal for a population?
- (iv) How do such age profile studies help policy makers prepare for future planning?



5. Why small animals are rarely found in polar region?
6. How does the special photosynthetic pathway like CAM support desert plants?
7. Why do animals migrate from one region to the other region in the cold season?
8. What type of population interaction in A, B, C, D between the species A and B as per the tabular column given below.

Species A	Species B	Name of Interaction
+	+	A?
+	-	B?
+	-	C?
-	0	D?

Which of the following A, B, C and D represent increase and decrease in population growth?

