

Class 12 Biology Organisms and Populations Important Questions **Answers at the Bottom**

Ch-11 Organisms and Populations

- Which of the following will not be considered a predator?
 - Vultures
 - Paramecium
 - starfish
 - Tiger
- At high altitudes our body compensates for deficiency of oxygen by
 - Decreasing rate of breathing
 - Reducing the rate of respiration within cells
 - Increasing white blood cell production
 - Reducing affinity of Hb for oxygen binding
- Shrew, rat and rabbit living together in a grassland exhibit:
 - amensalism
 - commensalism
 - mutualism
 - neutralism
- Organisms having the potential for interbreeding and producing fertile offspring is called
 - Class
 - Genus
 - Order
 - Species
- The statistical study of human population is called
 - Population human genetics
 - Sociology
 - Demography
 - Biostatistics
- Which one out of the eurythermal or stenothermal species, is likely to survive increased global temperature? (give reason)
- How do animals like fish and snails avoid summer related unfavourable conditions?
- Why are herbivores considered similar to predators in the iconological context? Explain.
- Why do cattle avoid browsing on Calotropis plants? Explain.
- What does S-shaped pattern of population growth represent? How is T-shaped pattern different from it and why?

11. Define population and community.
12. Egrets are often seen along with grazing cattle. How do you refer to this interaction? Give reason.
13. Define phenotypic adaptation. Give one example.
14. Why is thermoregulation more effectively achieved in larger animals than in smaller ones?
15. Write a short note on: Effect of temperature or water scarcity and the adaptations of animals.

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Answer

1.
 - a. Vultures, **Explanation:** Vultures will not be considered as predator. Vultures feed on dead animals on the other hand predators kill or harms the prey for obtaining food.
2.
 - d. Reducing affinity of Hb for oxygen binding, **Explanation:** At higher altitudes concentration of oxygen decreases in air due to decrease in air pressure. Our body compensate the deficiency of oxygen at higher altitude by reducing affinity of hemoglobin (Hb) for oxygen binding.
3.
 - d. neutralism, **Explanation:** Neutralism is a kind of relationship in which different organisms live in same habitat but do not harm each other. Shrew, rat and rabbit lives in same grassland but do not compete for food and shelter.
4.
 - d. Species, **Explanation:** A species is a group of individual organisms that interbreed and produce fertile, viable offspring. According to this definition, one species is distinguished from another when, in nature, it is not possible for matings between individuals from each species to produce fertile offspring.
5.
 - c. Demography, **Explanation:** The statistical study of human population in a particular area that changes over time or space is called demography. It includes size, growth, density, distribution and vital statistics.
6. Eurythermal species: They can tolerate and thrive in a wide range of temperatures.
7. Snails and fish go into aestivation to avoid summer-related unfavourable conditions by suspending their metabolic activities.
8. Herbivores are considered similar to predators in iconological context because they transfer the energy fixed by plants to the next tropic level of carnivores. They also maintain the plant population under control.

9. Calotropis produces highly poisonous cardiac glycosides which inhibit make the herbivore sick when eaten, inhibit feeding or digestion and disrupts its reproduction or even kill the herbivore hence it is not browsed by cattle.
10. – S-shaped pattern represents logistic growth
– T-shaped pattern represents unlimited growth
– The population grows in an exponential or geometric fashion and results in a T-shaped curve
11. **Population** : A population is the collection of inter breeding organisms of a particular species.
Community : In biological terms, a community is a group of interacting organisms (or different species) sharing an environment.
12. – Commensalism
– As egrets move, the cattle stir up and flush out from the vegetation the insects which otherwise might be difficult for the egrets to find and catch. Thus, the egrets are benefited while the cattle are neither benefited nor harmed.
13. Phenotype adaptations are acquired non-genetic changes in individuals such as physiological modification, acclimatization or behavioural changes. For example, if a person has ever been to any high altitude, on visiting such as place he or she must have altitude sickness because body does not get enough oxygen. But gradually he or she gets acclimatized and stop experiencing altitude sickness.
14. Heat loss or heat gain is a function of surface area.
– Since small animals have a large surface area relative to their volume, they lose body heat very fast.
– But larger animals have a ratio of surface area to volume of the body much smaller compared to small animals and hence thermoregulation in them is more effective.
15. **Effect of temperature or water scarcity and the adaptations of animals:**
High temperature and water scarcity means that an animal living in those condition has to preserve as much water as possible. Most of the animals do this by developing hard scaly skins which prevents water loss. Further most of the animals living in dry conditions use uricotelic mode of excretion. This helps in preventing further water loss. Many exothermic animals from Reptilian thrive in high temperature because they regulate their body temperature by exothermic means.