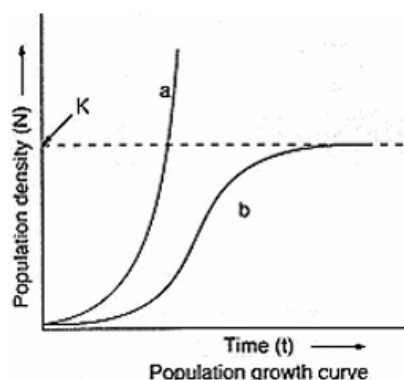


**CBSE Test Paper 04**  
**Ch-13 Organisms and Populations**

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1. Assertion: The group of individuals living in as defined geographical area share or compete for similar resources and potentially interbreed forms a population.  
Reason: only asexually reproducing organisms forms a population.
  - a. Assertion is correct but reason is incorrect.
  - b. Assertion is incorrect but reason is correct.
  - c. Both assertion and reason are correct.
  - d. Both assertion and reason are incorrect.
2. Population ecology makes link with
  - a. Population genetics and evolution
  - b. Only population genetics
  - c. Evolution and origin of life
  - d. Population genetics and inheritance
3. J-shaped growth curve is characteristic of
  - a. yeast cells grown under lab conditions
  - b. small population of reindeer experimentally reared in natural environment
  - c. human beings
  - d. primates
4. An example of hyper-parasite will be:
  - a. Plasmodium b. Wuchereria c. tapeworm d. mosquito
5. The birth rate if 7 new plants are added to previous year plant population of 23 Salvinia plants will be
  - a. 0.5 b. 0.4 c. 0.3 d. 0.25
6. Identify the curves 'a' and 'b' shown in the graph given below, list the conditions responsible for growth patterns 'a' and 'b'.



7. Give an example for
  - (a) An endothermic animal
  - (b) An ectothermic animal
  - (c) An organism of benthic zone
8. What is 'r' in the population equation given below.  $\frac{dN}{dt} = rN$
9. How is Cuscuta adapted to be a parasitic plant?
10. Name the four levels of group organization of living things in order of increasing size.
11. Cows and dogs are evrythermal animals. Why are polar bears categorized as stenothermal animals? (Give reason)
12. Distinguish between the Hibernation and Aestivation.
13. One of your friends Rakesh has gone to jungle safari with his family. On returning from that safari he is sharing experiences with you and tells that his father who is a businessman hunted a deer with his gun. What will you tell your friend after knowing about their expedition?
14. Differentiate between the following inter-specific interactions in a population -
  - (i) Mutualism and completion.
  - (ii) Commensalisms and Amensalism.
15. Seeing a crowd of students in one corner of the school, the Principal rushed to see the matter and found some children beating and chasing a small monitor lizard. On seeing the Principal, all the children fled to their classes except Alok who requested the Principal to arrange for some medical assistance for the injured animal. The Principal rewarded the student.
  - a) Was Alok an indisciplined boy who did not run to the class on seeing the Principal? What values does the act promote?
  - b) How do endangered species differ from vulnerable species?
  - c) Mention the factors resulting in loss of biodiversity / extinction.

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**Answer**

1. a. Assertion is correct but reason is incorrect, **Explanation:** The group of individuals living in as defined geographical area share or compete for similar resources and potentially interbreed forms a population. Interbreeding means sexually reproducing organisms but asexually reproducing organisms also form population ecologically.
2. a. Population genetics and evolution, **Explanation:** Population ecology is an important area of ecology because it links ecology to population genetics and evolution. At population level natural selection operates to evolve desired traits.
3. b. small population of reindeer experimentally reared in natural environment, **Explanation:** J-shaped growth curve is characteristic of small population of reindeer experimentally reared in natural environment in which growth occurs at very fast rate due to availability of sufficient natural resources.
4. a. Plasmodium, **Explanation:** A hyperparasite is a parasite whose host is a parasite. Plasmodium is causal organism of malaria that have two host human being and female anopheles mosquito. Mosquito itself is parasitic to human beings.
5. c. 0.3, **Explanation:** The birth rate of a population =  $\frac{\text{new individual added}}{\text{previous population}}$   
  
Here birth rate =  $\frac{7}{23} = 0.3043$   
  
Hence, birth rate of Salvinia plants is equal to 0.3.
6. a. **Exponential growth curve:** When the resources are not limiting, this form of curve appears.  
b. **Logistic growth curve:** When the resources are limiting, this form of growth curve appears, where K represents the carrying capacity.

7.

a. Human (mammal)

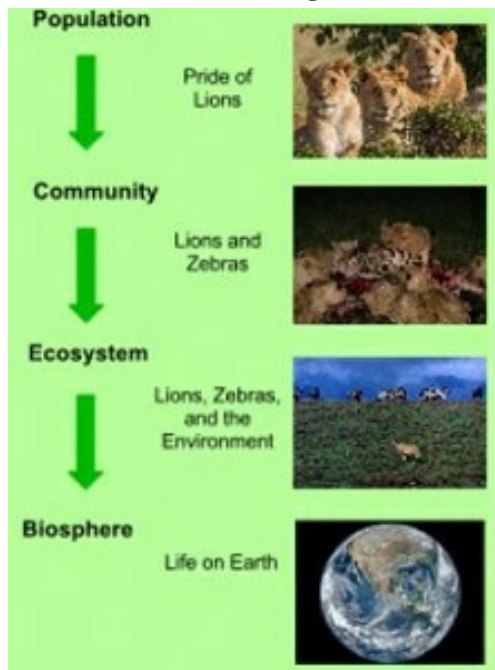
b. Frog (amphibian)

c. Starfish

8. 'r' is the intrinsic rate of natural increase

9. Cuscuta produces haustoria to derive nutrition from the host plant. Cuscuta has haustorial or sucking roots which penetrate into the xylem and phloem vessels of the host plant and thus it can derive its nutrition.

10. Biological organization is the hierarchy of complex biological structures and systems that define life using a reductionistic approach. Four levels are as shown in the image.



11. Polar bears tolerate a narrow range of temperature so these are called stenothermal animals, while cows and dogs can tolerate and survive a variety of temperature and are called eurythermal animals.

- 12.
- Hibernation is winter sleep and aestivation is summer sleep.
  - Hibernation is of longer duration as compared to aestivation.
  - In hibernation, animals look out for a warmer place. In aestivation, animals tend to find a shady and moist place for themselves.
  - Aestivators are usually cold blooded but hibernation is performed by both cold

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and warm blooded animals.

- Aestivators are usually snails, earthworms, bees, salamanders, etc. Animals which hibernate include, birds, mammals, bats, insects and many more.

13. It is unethical and leads to loss of biodiversity and result in imbalance in Eco system.

**Values**

- Concern about animal.
- Empathy.

14. In mutualism both the species are at benefit so it is beneficial whereas in competition both the species are at loss in this life the competition occurs when closely related species compete for the same resources that are limiting.

- i. In mutualism both the species are at benefit. So beneficial relationship is there.
- ii. In commensalism one species is benefited whereas the other is neither benefited nor harmed.

In Ammensalism one species is harmed and the other is unaffected.

15. **Ans-a)** No. Alok was a brave and courteous boy. He expressed his love for animals, commitment towards natural resource conservation.

**Ans-b)** Endangered species (when population of a species reduces to a level which poses immediate danger of extinction, e.g. one horn rhinoceros, great Indian bustard, musk deer etc)

Vulnerable species (species whose population have greatly reduced and may be endangered species in future if the causative factors continue to operate. E.g Asiatic wild ass, black buck, spotted deer, golden langur etc)

**Ans-c)** (i) Habitat loss and fragmentation

(ii) Over exploitation

(iii) Alien species invasion

(iv) Co-extinction