ORGANISMS & IT'S ENVIRONMENT

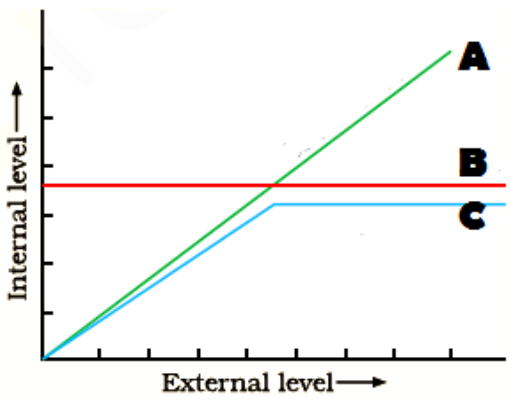
1. Define population and community. (NCERT)

2. On earth, life exists even in extreme and harsh conditions. Mention any 2 major biomes in India. (1) (March 2016)

3. List the various abiotic environmental factors. (NCERT)

4. 'The vegetation in an area is determined by different characteristics and parameters of soil'. Comment on this statement.

5. Analyse the graph given below showing the organismic response to changing external conditions. According to their responses, the organisms are grouped into 3 types.



a. Name the type which will show 'A', 'B' and 'C'.
b. Give one example in each group.

6. Give reason for the following:

a. Small animals are rarely found in polar region.
b. A fresh water organism cannot live for long in sea water or a marine organism in fresh water. (NCERT)

7. How is diapause different from hibernation? (NCERT)

8. Under unfavourable conditions, many zooplankton species in lakes and ponds are known to enter a stage of suspended development. Name the stage. (1)(March 2018)

8. Use proper terms for the statements given below.

a. Few organisms can tolerate and thrive in wide range of temperature.
b. Some organisms are tolerant to a narrow range of salinities.
c. The organism should try to maintain the constancy of its internal environment.
d. The organism may move temporarily from the strainful habitats to more hospitable area and return when stressful period is over.

9. Snakes change their body temperature with change in external temperature, but human beings not. Organisms may be classed according to above character with explanation (2) (SAY 2010)

10. Responses of organisms to abiotic stress involve different methods. Explain any 2 such responses with suitable examples. (2) (SAY 2014)

11. By observing the relationship of the first, fill in the blanks.

a. Organisms tolerating a wide range of temperature : Eurythermal
Organisms tolerating a narrow range of temperature : .....
b. Hibernation: Bears :: Aestivation :.....
c. Wide range of salinity : Euryhaline ::
Narrow range of salinity : ..... (1) (March 2011)

12. In summer, we use air conditioners and in winter we use heaters. Homeostasis is accomplished by artificial means. Explain 4 ways by which other living organisms cope with the situations. (2) (March 2013)

13. Match the items of column A with B. **(2018)**

A	B
a. Desert lizard	i) Concentrated urine
b. Kangaroo rat	ii) Diapause
c. Snail	iii) Bask in the sun
d. Zooplankton	iv) Aestivation
	v) Hibernation

13. Desert plants like Opuntia are able to grow in extreme conditions. Suggest any 2 adaptations of this plant. (1) (March 2015, SAY 2013)

14. What do you mean by Allen's rule?

15. While going to a high altitude area, many people experience altitude sickness which include nausea, fatigue and heart palpitations. How do your body adjust physiologically to such a condition?

16. Adaptations are the attributes of the organism that enables it to survive and reproduce in its habitat. Give the adaptations of-

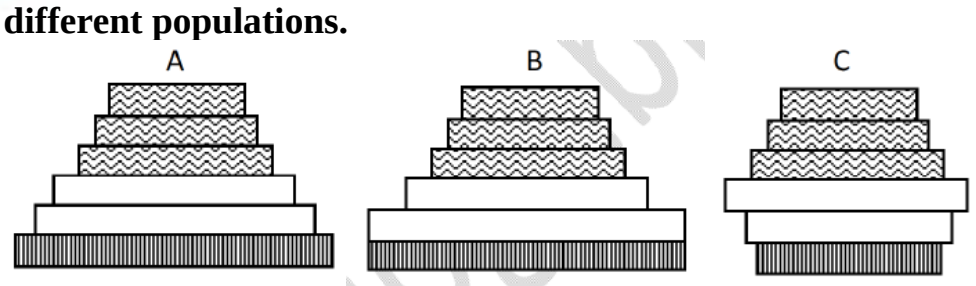
a) Cactus plant in desert
b) Kangaroo rat in desert
c) Seals in polar region (3) (March 2013)

17. Adaptations may be morphological, physiological or behavioural. Write the behavioural adaptation in desert lizard. (2)

POPULATION

18. List the attributes that populations but not individuals possess. (NCERT)

19. Given below is the bar diagram showing the structure of 3 different populations.

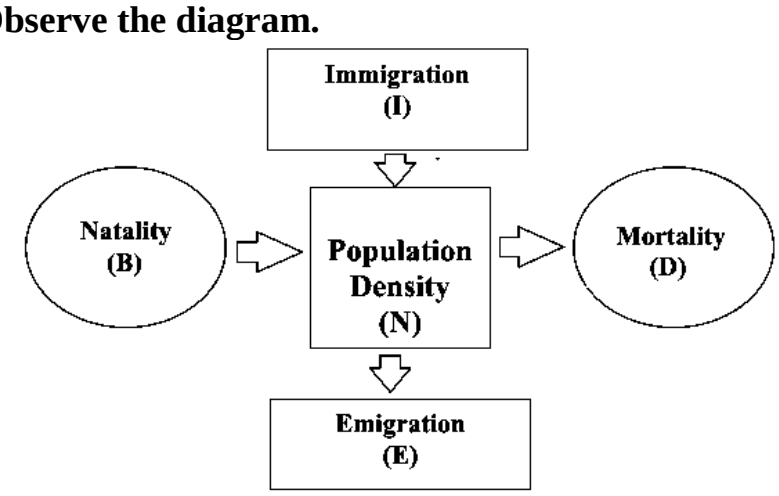


Observe the diagram carefully and answer the following questions

a. Select the stable population
b. Compare the nature of population growth in A, B and C
(3) (March 2011)

20. Muhammad and his family left Dubai from Kozhikode on March, 2009. In Kozhikode, they referred as ..... after 2009. How it affects Kozhikode population? (1) (SAY 2011)

21. Observe the diagram.



Define the following terms:

a) Natality b) Mortality
c) Emigration d) Immigration **(2) (SAY 2014, 2010)**

22. The density of population in a given habitat increase or decrease due to different reasons. Name 2 factors responsible for increase in population in a given area. (1) (March 2014, 2010)

23. $N_t+1 = N_t + [(B + I) – (D + E)]$

a. Evaluate the above statement

b. Describe the role of partial regulators in maintaining homeostasis. **(2) (Model 2014)**

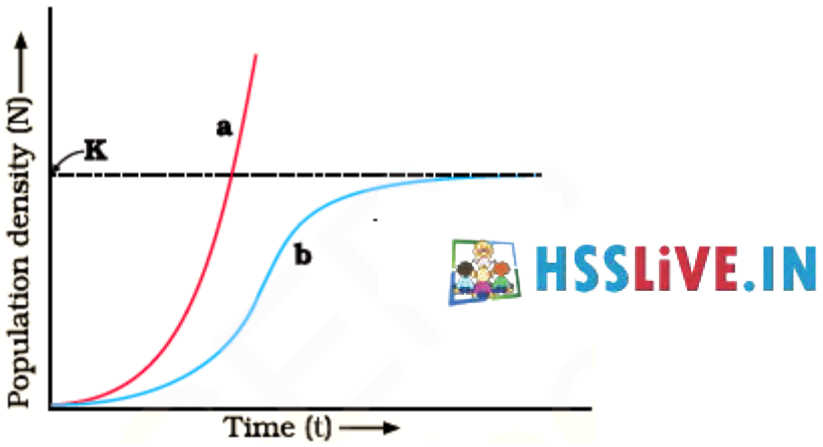
24. Which of the following leads to decrease in population?

i. Natality and mortality
ii. Mortality and emigration
iii. Mortality and immigration
iv. Natality and immigration **(1) (SAY 2013)**

25. The integral form of the exponential growth equation is $N_t = N_0e^{rt}$. Expand the symbols in this equation.

26. Differentiate exponential growth and logistic growth.

27. Analyse the given graph which represents the population growth curve.



a. Which growth curves do 'a' and 'b' indicate?

b. Suggest an equation for 'b'.

c. What does 'K' stand for? (2)(March 2018)

28. With regard to population growth rate, when responses are limiting the plots is logistic. Verhustl-Pearl logistic growth is represented by the equation,

$$\frac{dN}{dt} = rN\left(\frac{K-N}{K}\right)$$

What are-

a. r b. K **(1) (March 2015)**

29. In a given habitat, the maximum number possible for a species is called ..... of that species in that habitat

(1) (March 2017)

1. Insects feeding on plant sap and other parts are known to be?

(1)(Model 2018)

30. (A) Different types of population interaction has been observed in a population

Write the types of interaction observed among the following species:

Species A	Species B	Type of interaction
Orchid Ophrys	Bees	.....
Cattle	Cattle erget	.....
Sea anemone	Clown fish	.....
Ticks	Dogs	.....
Cuscuta	Hedge plant	.....
Tiger	Deer	.....

OR

(B) Organisms other than human beings manage or adapt to stressful conditions by adopting different mechanisms. Explain any 3 mechanisms adopted by them to maintain the internal environment (3) (March 2017)

31. In rocky intertidal communities of the American Pacific Coast, the starfish Piaster were removed for an experimental purpose.

a. How did this affect the invertebrates in that region?

b. List out the important role of predators in nature.

32. Competition causes extinction of species. Substantiate this statement based on the extinction of Abingdon tortoise. (3)

33. (a) Population interactions may be beneficial or not. Write any 3 interactions in detail.

OR

(b) Organisms are influenced by biotic and abiotic factors. Write an account of any 3 abiotic factors. (3) (March 2016)

34. Students involved in nature club activity found some interspecific interactions between organisms in a garden area. They made a table of interaction giving '+' to beneficial, '-' to detrimental and '0' to neutral interactions.

	Species A	Species B
i.	+	+
ii.	-	-
iii.	+	0
iv.	-	0

a. Give name of interaction in each case.

b. Explain how parasitism differ from predation

c. Give the significance of species interaction

(4) (Model 2019, March & SAY 2012, 2010)

35. Though predation is considered as a negative interaction, it performs certain ecological functions. Mention any 2 of them.

(2) (Model 2019, 2017)

1. Analyse the table given below and fill in the blanks.

A	B	C
Monarch butterfly and bird	.....(a).....	Predation
Cattle egret and cattle	Beneficial to one species and the other species has neither benefit nor harm	.....(b).....
Ticks and dogs	.....(c).....	.....(d).....

36. Name important defence mechanisms of prey species.

37. No 2 species can occupy exactly the same niche in the same habitat at the same time. Mention the basic ecological principle to explain this phenomenon (SAY 2009)

38. Gause's proposed the 'Competitive Exclusion Principle' in 1934. State it. (2) (Model 2017)

39. What do you mean by 'resource partitioning' in an ecosystem?

40. List any 4 adaptive features evolved in parasitic animals enabling them to live successfully on their hosts.

41. Briefly explain the special adaptations evolved by parasites in accordance with their life styles. What are the affects of parasites on the host?

42. What are ectoparasites? Give one example.

43. Comment on brood parasitism.

44. Sucker fish and shark live in close association is a classic example of commensalism. What is commensalism?

(1) (March 2015)

1. Observe the relationship between the first two terms and fill in the blanks.

Fungus and algae : Lichen

Fungus and root of higher plants : ..... (2018)

45. Some type of Orchids live on the branches of mango trees. The relationship between mango tree and orchid is an example of-

i. Mutualism
ii. Predation
iii. Commensalism
iv. Parasitism **(SAY 2013)**(NCERT)

46. Read the statements below and identify the mode of interaction between the species.

a) Tiger eating deer
b) Butterfly feeding pollen
c) Human liver fluke feed on snail
d) Lice on human
e) Orchids attached to a tree
f) Mycorrhizal association of fungi and roots of higher plants
g) Sparrow eating seed
h) Egrets foraging close to cattle
i) Barnacles on whale
j) Wasp on fig
k) Ticks on dogs
l) Abingdon tortoise and goats **(2) (Model 2018, March 2013)**

47. Analyse the table and fill the column B with the suitable example from the given list.

Types of Interaction	**B**
Competition	.....
Mutualism	.....
Parasitism	.....
Commensalism	.....

i. Cattle egret and grazing cattle
ii. Lying of egg by cuckoo in crow's nest
iii. Fig species and pollinator creasp species
iv. Flamingos and fishes in the North American lakes

(1) (Model 2013)