

UNIT X

ECOLOGY

CHAPTER: 13.ORGANISMS AND ENVIRONMENT.

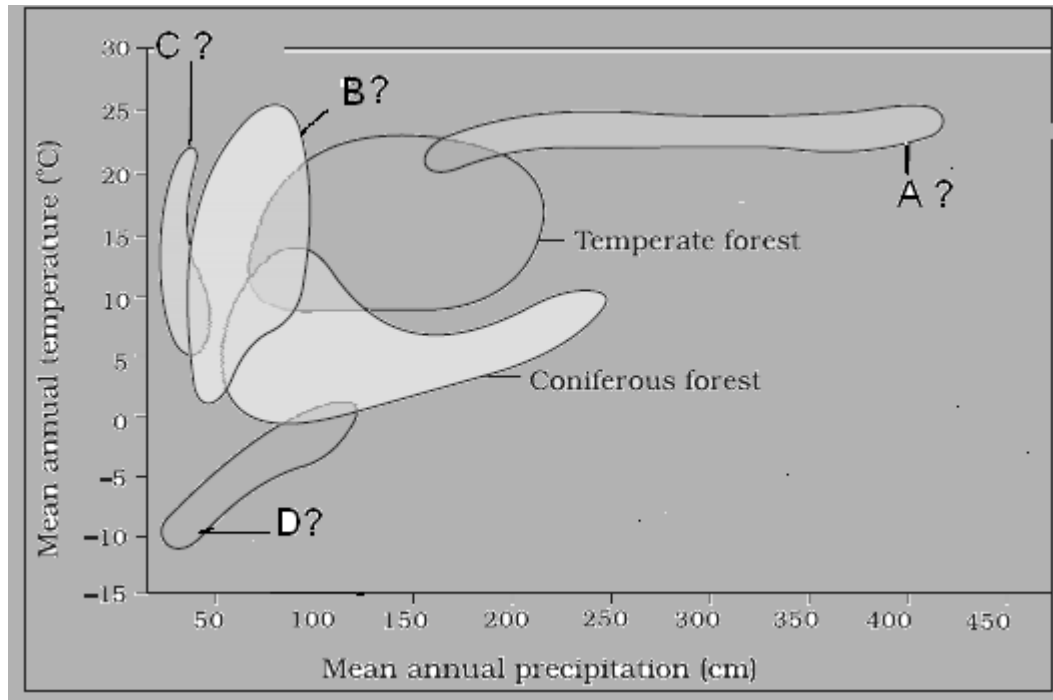
CHAPTER: 14.ECOSYSTEM.

CHAPTER: 15.BIODIVERSITY AND CONSERVATION.

CHAPTER: 16.ENVIRONMENTAL ISSUES.

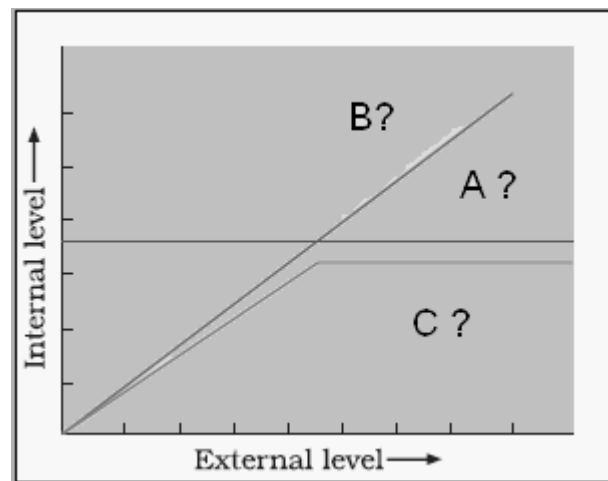
CHAPTER: 13.ORGANISMS AND ENVIRONMENT.

Q.1. Identify the biome distribution with respect to annual temperature and precipitation from the following graph answer the A, B,C&D.



Answer: A – Tropical forest
B - Grassland
C – Desert
D – Arctic and Alpine Tundra

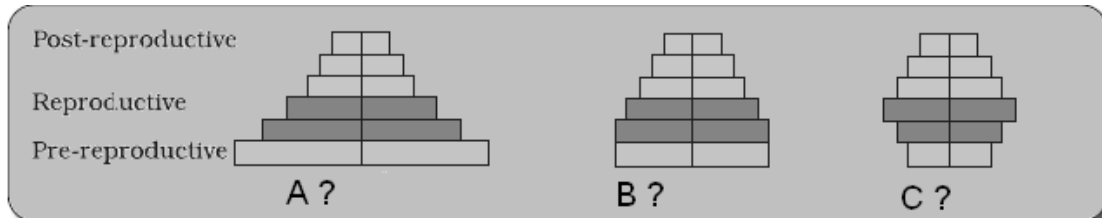
Q. 2. What does the graph A, B&C represent with reference to organismic response to Homeostasis?



Answer: A - Regulators

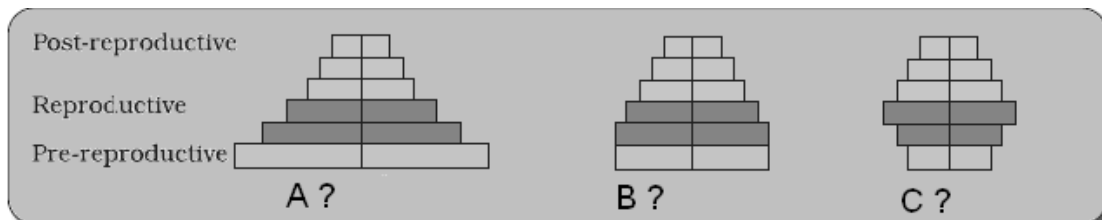
B - Conformers
C – Partial Regulator

3) From the following ecological pyramid find out the pyramid showing stable population. Why?



Answer: B.

4) From the given ecological pyramid representing pre-reproductive, reproductive and post – reproductive stages of human population. Out of A , B and C which is the declining population?



Answer: C.

5) Why small animals are rarely found in polar region?

Answer: i) Lose body heat very fast
ii) Spend much energy to generate heat

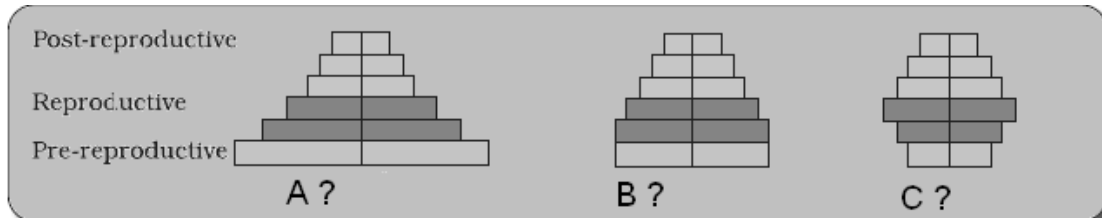
6) Why are marine animals not able to survive for a long time in freshwater and vice versa?

Answer: Osmotic Pressure

7) How does the special photosynthetic pathway like CAM supports desert plants?

Answer: Close the stomata in day and open in the night.

8) Ecological pyramid based on reproductive age is given below. Find out the pyramid showing expanding population. Why?



Answer: A.

9) Why do some animals undergo hibernation and aestivation but the other animals living in the same habitat do not show the process?

Answer: i) maintain homeostasis
ii) migrate from the stressful environment.

10) Why do animals migrate from one region to the other region in the cold season?

Answer: i) Away from stressful environment
ii) Breed and improve population

11) What does the stationary phase of a sigmoid curve indicate?

Answer: Carrying capacity/ Limited resource availability

12) Name the type of population interaction 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?
+	-	D?

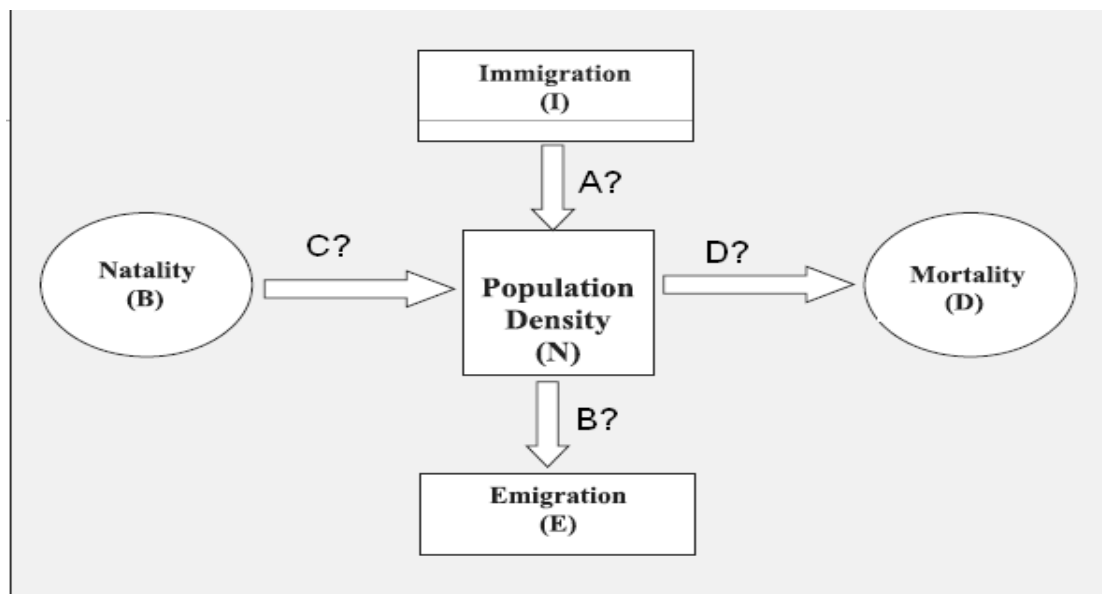
Answer: A - Mutualism
 B - Competition
 C- Predation/ Parasitism
 D- Parasitism/ Predation

13) 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?

Answer: A- Mutualism
 B- Predation/ Parasitism
 C - Parasitism/ Predation
 D- Amensalism

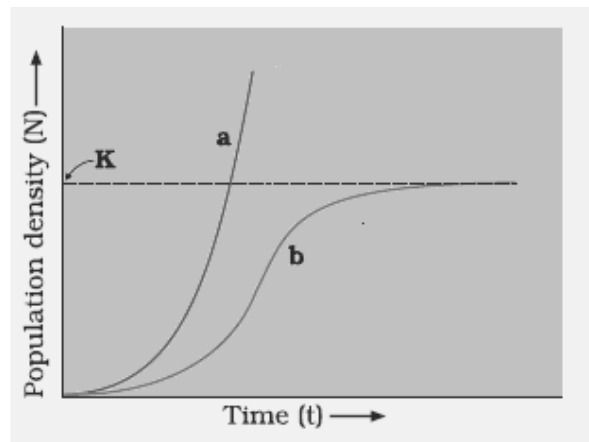
14) Which of the following A, B, C,D represent increase and decrease in population growth?



Answer: A&C increase in population
 B&D decrease in population

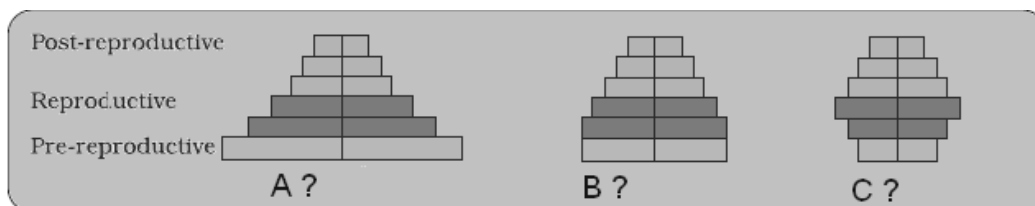
15) From the following graph

- i) What are the conditions for 'a' and 'b'? Write the correct formula.
- ii) What does k represent ?



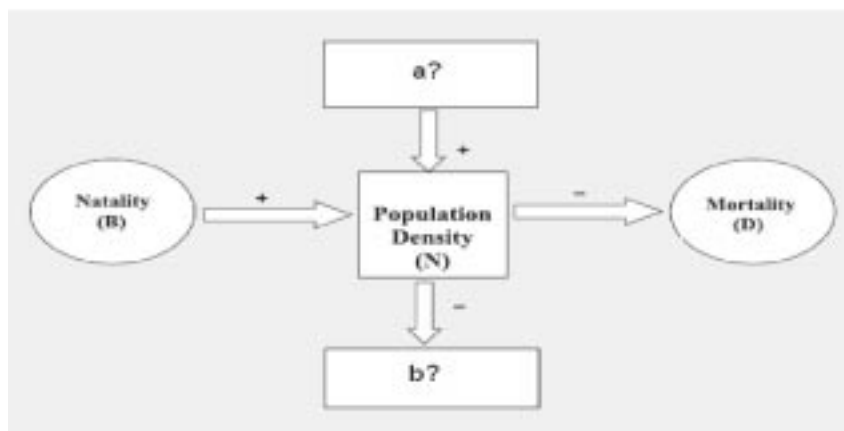
Answer: Refer page no.230 NCERT text book

16) There is a change in a population due to predator attack. Which type of age pyramid given below will represent the situation? Why?



Answer : C

17) The population density $N_{t+1} = N_t + [(B + I) - (D + E)]$ formula
Complete the information in the given flowchart 'a' and 'b'.



18) Why the male bee “Pseudocopulates” with the flower of Mediterranean orchid

Answer: One petal resembles the female bee in size colour and markings.

19) Five species of warblers co-existed on a tree without any sort of competition. How did they avoid competition?

20) The leaves of a plant in Tundra resemble that of a plant living in a desert. What do plants living in a such diverse habitats shows similar adaptation?

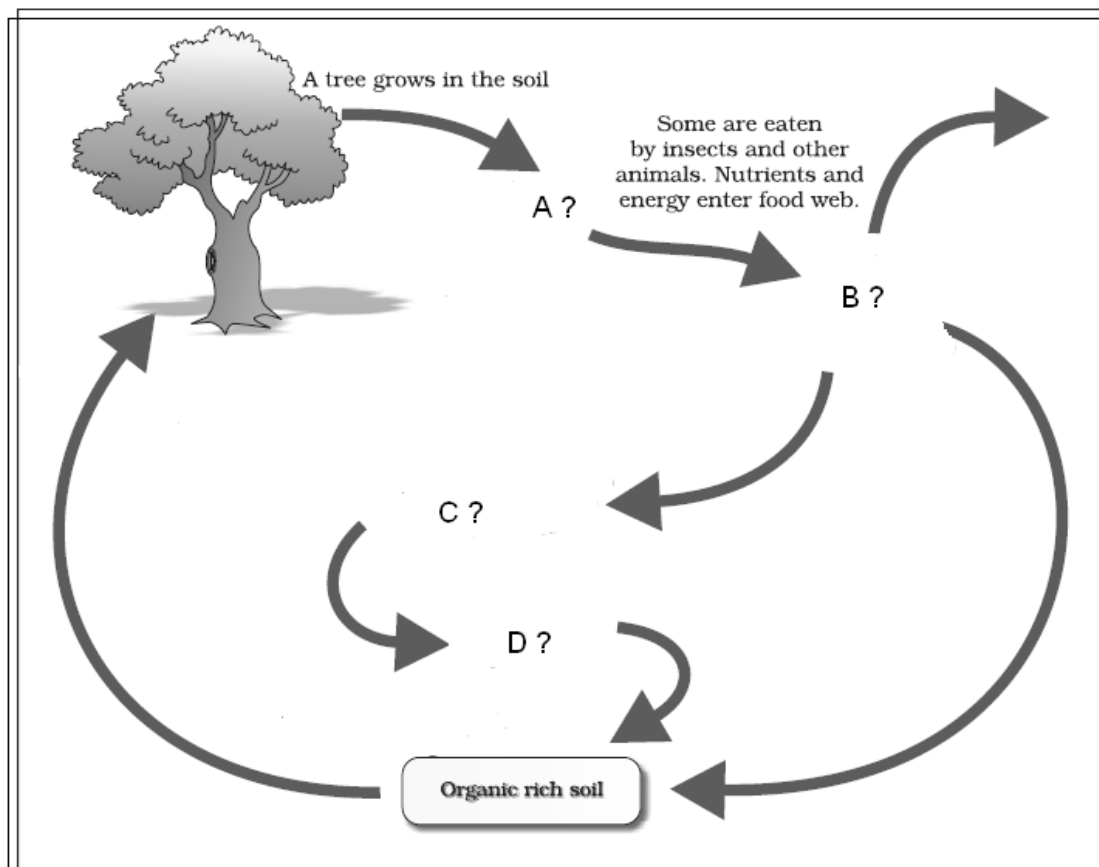
21) When a species becomes extinct, the plant and animal species associated with it in an obligatory way also becomes extinct. But nature has a unique way to prevent this. (a) What is this mechanism called?

(b) Cite an example to explain the mechanism ?

23) Polar regions are usually inhabited by large sized animals. Small sized animals are generally rare. What is the disadvantage of being small in polar regions?

CHAPTER: 14.ECOSYSTEM.

1). The following is the diagrammatic representation of decomposition cycle in a terrestrial ecosystem, answer and complete the cycle.



Answer: A- Green leaves

B- Eaten by insects

C- Bacteria and Fungi

D- Soil earthworms and Bacteria

2) Mark the producer, primary consumer, secondary consumer and tertiary

consumer of a grassland ecosystem of the following.

GRASS SNAKE HAWK GRASSHOPPER

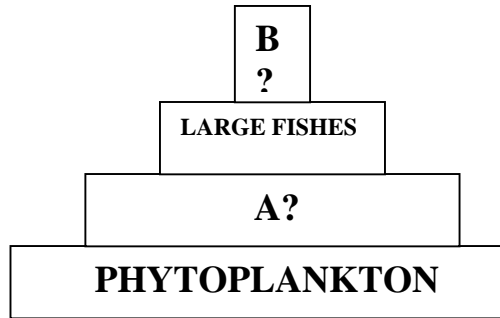
3). Find out the consumer of top order/ top carnivore from the following food chains. Why?

a) Phytoplankton → small fishes → large fishes → Hawk

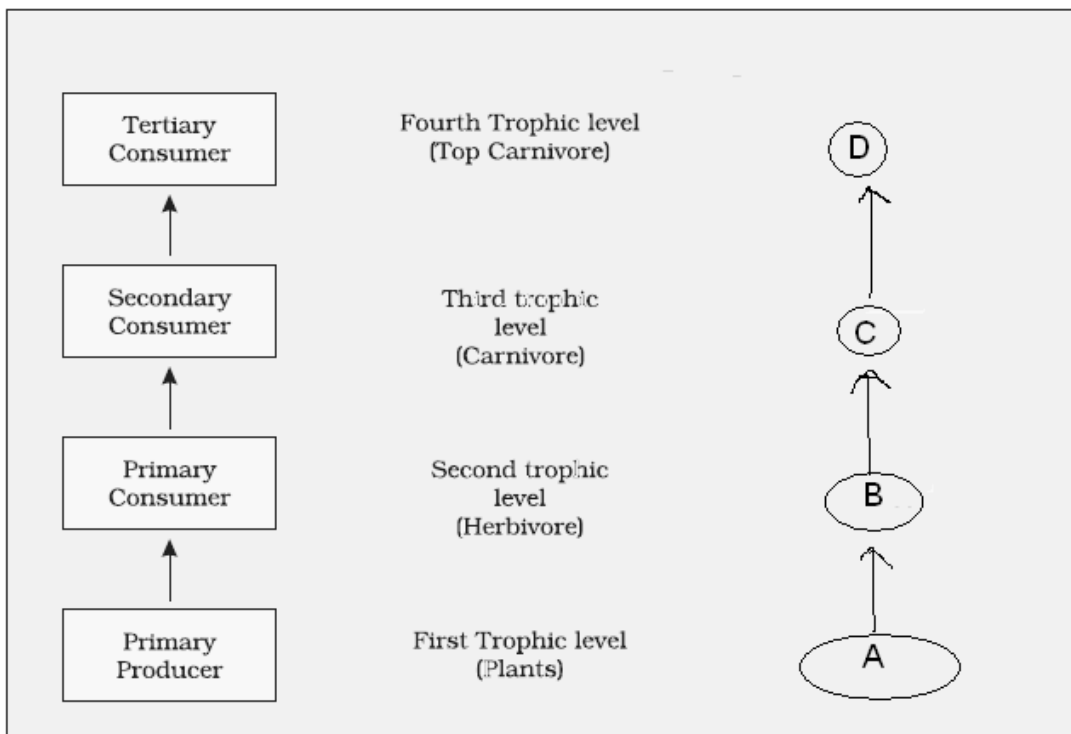
b) Phytoplankton → Zooplankton → Fishes → Man

Answer: (a). Hawk
(b). Man

4) Write the probable primary consumer and top consumer of the following ecological pyramid.



5) Based on the following information, answer the A, B, C and D with reference to Grass land ecosystem



6).In terrestrial ecosystem DFC and GFC are interlinked at certain level. Jusify the statement

Hint: GFC-PREY to DFC

7). Which stage is common between hydrarch and xerarch succession?

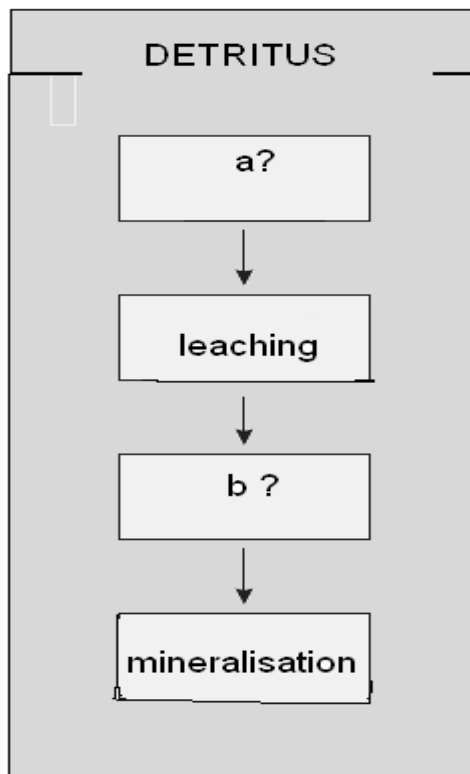
Ans: Climax forest

8). Why food chain in the environment operative in the form of food web?

Ans: (i)Omnivorous nature

(ii) One animal depends on many types of animal for food.

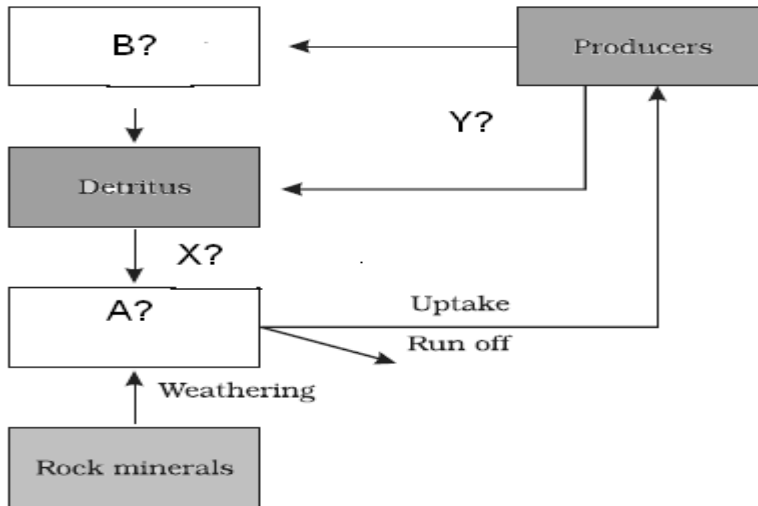
9). Complete the steps of decomposition process by using a suitable terminology in a &b.



Answer : a-Fragmentation

b- humification

10) Complete the following simplified schematic diagram of Phosphorous cycle by writing the correct answer for 'A', 'B', 'X' and 'Y'.



11) Why are all the pyramids upright in most of the ecosystems?

Ans: Energy at the lower trophic level is more than at higher trophic level.

12. Why pyramid of energy is always upright and can never be inverted?

Ans: Some amount of energy is lost during its transfer from one trophic level to the next.

13. Tree → Birds → Parasites

Draw a ecological pyramid by using the above food chain

14. How human activities can significantly influence the carbon cycle?

15. Why ecosystem services are more essential nowadays?

16. In a simple ecosystem, there exists a field of clover. Mice eat the clover and skunks eat the mice. The skunks are in turn eaten by wolves. If 10,000 calories are available from clover plants, how much energy would each of the organism in the food chain receive.

!7. In the pyramid of biomass drawn name the two crops.

(i) One which is supported.

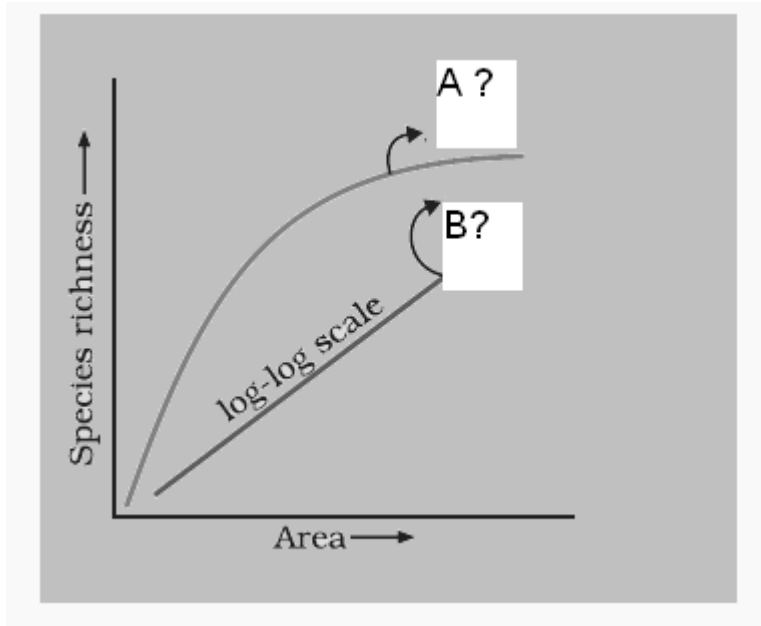
(ii) One which supports.

(iii) In which ecosystem is such a pyramid found.



CHAPTER: 15. BIODIVERSITY AND CONSERVATION.

1. From the graph of species richness and area relationship write the equation for 'a' and 'b'.



2. How do zoological parks differ from National park concerned with species conservation?

Ans: Zoological park – ex-situ conservation, National park – in-situ conservation.

3. The accelerated rate of species extinction that the world is facing now is largely due to human activities. Group such activities under four major heads and explain.

Ans: Habitat loss and fragmentation; Overexploitation; Introduction or invasion of alien species; co-extinction.

4. A survey of latitudinal gradients of bio-diversity of birds is as follows:

India – 8° North ----- 1200 Species

Greenland – 71° North ---- 55 Species

By analyzing the above data what does it indicate about the distribution of birds.

Answer: Species diversity decreases from equator towards the poles.

5. Why Biodiversity do not have political boundaries?

Answer: Conservation is the collective responsibility of all the Nations.

THREE MARKS QUESTIONS:

1. Give one term for the following statements
 - a) Exploring molecular genetics , species level diversity for product of economic importance.
 - b) The Amazon rain forest being so huge.
 - c) Sixth episode of extinction is in progress at hundred to thousand times faster rate

Ans:

- a) Bio-prospecting
 - b) Lungs of the planet
 - c) Sixth Extinction
2. What do you mean by evil quartet? How can it be prevented?
Hint: Any three causes of biodiversity loss
 3. How is biodiversity useful to modern agriculture?
 4. (i) Mass extinction of species has been witnessed even before humans appeared on the earth . But how is the sixth extinction presently in progress different from the previous episodes?
(ii) Mention any three consequences of such an extinction.

FIVE MARKS QUESTIONS

1. Biodiversity has various benefits to man kind- Discuss.

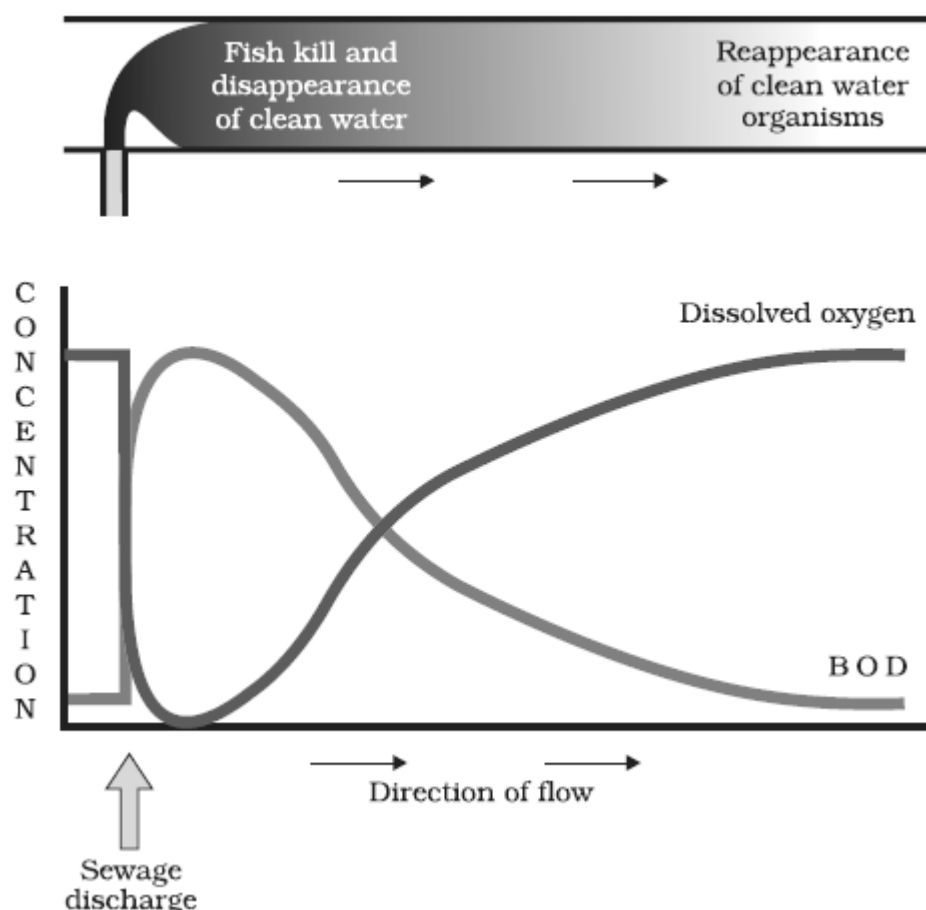
CHAPTER -16 ENVIRONMENTAL ISSUES

ONE MARK QUESTIONS:

1. What is the role of catalytic convertor?
Hint: Conversion of poisonous gases
2. Identify the catalytic convertor from the following:
a. Platinum b. Palladium c. Lead d. Radium
3. Accidental leakage and safe disposal are the problems of which energy?
4. In Bangalore recycled plastic is modified as _____
5. In Delhi, the current auto fuel policy is _____
6. A cyclical zero waste procedure of cropping is _____
7. Which size of the particulate matter is harmful to human health?

TWO MARKS QUESTIONS:

1. Study the graph and answer the questions given below



- a. What measures would you take to decrease BOD and increase DO?
 - b. What kind of sewage discharge will increase BOD?
2. To what type of wastes do irreparable computers and other electronic goods belong to?
Ans: Defunct ships and e-waste.

3. Name four metals which are recovered during the recycling of e-waste?

Ans: Copper, Iron Silicon Nickel and Gold.

4. Complete the following:

<u>A</u>	<u>B</u>
1. _____	Carbon monoxide & Nitrogen oxide
2. Electrostatic precipitator	_____
3. _____	High noise level
4. Land fills	_____

Ans: 1. Catalytic converter
2. Particulate matter
3. Earmuffs
4. Solid waste

5. Water \longrightarrow Zooplanktons \longrightarrow Small fish \longrightarrow Fish eating birds
DDT (0.003ppm) (0.04ppm) (0.5ppm) (5ppm)

Why is the concentration of DDT increasing from the producers to consumers in the above food chain?

THREE MARKS QUESTIONS:

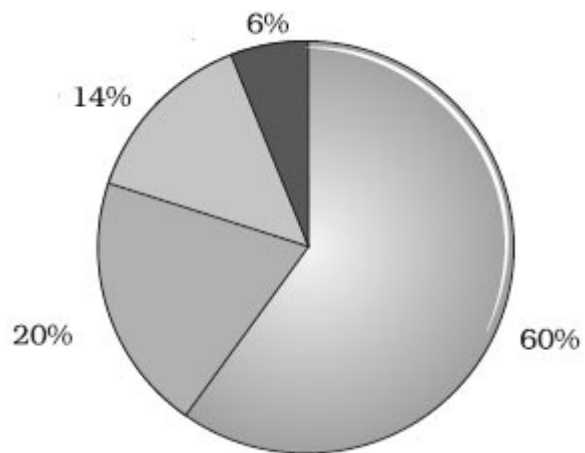
1. Why is CNG preferred than petrol or diesel?
Hint: Fuel efficiency, no adulteration, no theft
2. What are the wastes generated during trips and tours? How can it be minimized?
3. How do foam and ecosan help in waste water treatment?

FIVE MARKS QUESTIONS:

1. What measures would you take to reduce environmental pollution?

Hint: no biomass burning, vehicle use, no tobacco, electric chimney, noise, tree plantation, disposable and recyclable material, minimize fossil fuels.

2. Observe the following diagram and answer the questions at the end



- a. Name the gases.(2)
- b. Comment on the consequences of increase in the level of each gas (any three)(3)