4.Environmental Management

Q . Write whether the following statements are true or false, giving suitable explanation for the same. (1M each)

1. Only abiotic factors play very important role in the ecosystem.

Ans : False – Both biotic and abiotic factors play very important role in the ecosystem.

2. Paddy fields are frequently attacked by frogs.

Ans : False – Paddy fields are frequently attacked by grasshoppers.

3. X-rays and radiations from atomic energy plants are natural radiation.

Ans : False – X-rays are not present in natural radiations. X-rays are artificial radiation.

4. 86 Highly sensitive biodiversity spots are reported all over the world.

Ans : False – As per the latest information and available data, there are 34 highly sensitive biodiversity spots.

5. Flow of nutrients in an ecosystem is unidirectional.

Ans : False – Flow of energy in an ecosystem is unidirectional. Flow of nutrients in cyclic.

Q. Match the Columns: **(5M)**

Column I	Column II
6. Physical, Chemical and biological factors together form	a) Environment
7. Basic functional unit in the Environment	b) Ecosystem
8. Biomedical waste (Management And handling) rule	c) 1998
9. Environmental Conservation Act	d) 1986
10. Vulnerable	E) Gaint Squirrel
	F) Tiger, lion

Ans:

6. Physical, Chemical and biological factors together form	=	a) Environment
7. Basic functional unit in the	=	b) Ecosystem

Environment

8. 8. Biomedical waste (Management And handling) rule = c) 1998

9. Environmental Conservation Act = d) 1986

10. Vulnerable = F) Tiger, lion

Q. Find the odd one out. (5M)

11. Ash, Carbon dioxide, Lead, Asbestos

Ans : Carbon dioxide.(All others are solid particulate Pollutants.)

12. Manas Sanctuary, Sunderbans, Sanctuary, The western Ghats, Tadoba National Park.

Ans : Tadoba National Park.(All others are endangered heritage places of India)

13. Lion tailed monkey, White rats, MSK deer, Tiger.

Ans : White Rats.(All others are species that are threatened).

14. Conservation, Regulation, Pollution, Prohibition.

Ans : Pollution (All others are ways of environmental Protection).

15. IPCC, UNEP, IUCN, BNHS

Ans : BNHS (All others are international organizations. BNHS is Bombay Natural History society.)

Q. Find the correlation : (5M)

16. Rare Species : Musk deer : : ---------- : Lesser florican.

Ans : Endangered Species.

17. Red Panda : Rare Species : : Giant Squirrel : ----------

Ans : Indeterminate Species.

18. Nitrogen oxygen : Gaseous Cycle : : Soil and Rocks : ----------

Ans : Sedimentary Cycle.

19. Manas : One horned Rhino : : Gir : ----------

Ans : Asiatic Lion.

20. Mumbai : Bombay Natural History Society : : Tehri Garhwal : ----------

Ans : Chipko Centre.

21. What is Ecosystem ?

Ans : In an environmental there are biotic and abiotic components and their interaction with each other. All such interactions make an ecosystem.

22. Which are the types of consumers?

Ans : primary consumers, secondary consumers, tertiary consumers or apex consumers are the different types of consumers.

23. Which are different trophic levels in food chain?

Ans : The different trophic levels in food chain are as follows :

i) Producer (first trophic level)

ii) Primary consumer (second trophic level)

iii) Secondary consumer (Third trophic level)

iv) Tertiary consumer (Fourth Trophic level)

24. What is energy Pyramid? (2M)

Ans : Energy pyramid is the diagrammatic representation, thet depict the energy levels at the various trophic levels.

- There are interaction in the form of energy transfer in all the food chains and food web.

- The energy pyramid shows how energy travels up a food chain.

25. What is difference between food chain and food web? (2M)

Ans : In every ecosystem there are always interaction between producers, consumers and decomposers. This sequence of feeding interaction is called as food chain.

- In every food chain there are links between four to five trophic levels constituting the producers, primary consumers, secondary consumers tertiary consumers, etc.
- The links of food chain are in linear sequence.
- But food web is complex network of many small food chain.
- In fact, Food web is the collection of many small food chains.
- Thus, When many food chains are interwoven, they forms food web.

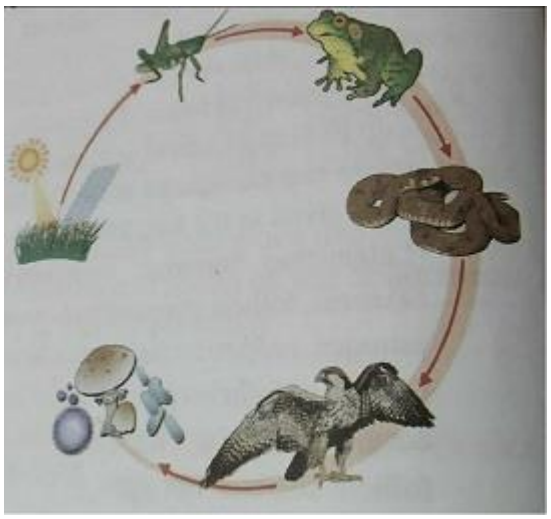
26. What is necessary to convert this picture into food web? Why? (2M)

Ans : If this food chain has to be converted into a food web, There should be interactions between the different components.

- Any living organism can be prey to different predators. Moreover, a predator can also be pray for others.

- Eg. Frog eats different insects the same frog can be either eaten by snake or by hawk.

27. Write the name and category of each of component as shown in picture. (3M)



Ans : By utilizing the solar energy, the green plants perform photo synthesis. Thus, they are producers of the food chain.

- This food is consumed by the grasshopper. Thus it is primary consumer.
- Frog is secondary consumer as its diet consists of insects like grasshopper.
- Snake is tertiary consumer as if feeds on frogs, while the hawk is apex consumers as it cak kill the snake and feed on it.
- Last picture in the food chain is fungi which are acting as decomposers.

- Few bacteria are shown in the picture, acts on all the levels and are bring about decomposition.

28. A bird building nest on a tree feed upon the fishes in a nearby pond whether this bird is part of both i.e tree as well as pond ecosystem?

Ans : The bird is part of both the ecosystems.

- For shelter, the builds the nest on the tree.
- That means it takes advantage of tree ecosystem
- Moreover, it feeds on the fish from the pond.
- Being a predator, the bird maintains the fish population of the pond and thus it also becomes the part of the pond ecosystem too.

29. What will be the effect on paddy crop?

Ans : If the population of frog declines, then there will be rise in the population of grasshoppers. The paddy fields will hence be infested with insect pests.

30. Number of which consumers will decline and which will increase? (3M)

Ans : The food chain if altered, results in imbalance in the ecosystem. ‘ Paddy -> Grasshoppers -> Frog -> Snake ‘ , this food chain is natural.

- When by any reason there is decline in the number of frogs, thus secondary consumer will also decline.
- Due to this decline, snake which is at tertiary consumer level will also decline.
- The primary consumers, i.e grasshoppers will increase as there is now no check on their population.
- Due to increase in their population the paddy production will be reduced.
- Due to reduced number of snakes, rats and other rodents form neighbouring areas would also rise, which are also secondary consumers.

31. What will be overall effect on that ecosystem. (1M)

Ans : If Frogs population declines, there would be imbalance of entire ecosystem. The number of prey and predator population will change and thus the food chain will come to an end.

32. What is environment ? (1M)

Ans : Environment is a broad concept. Physical, chemical and biological factors affecting the living organisms in any possible way is collectively called as environment.

33. Which factors affect the environment? How? (3M)

Ans : The natural as well as artificial factors affect the environment.

- Among natural factors, the sudden changes in the weather, the different types of natural disasters, etc. affect the normal environment.
- Due to such changes there are problems in the interrelationships that exist between food chain and food web.
- Due to various man-made causes there are extreme destruction of environment.
- Industrializations, the pollution due to such industries, urbanization, hunting and poaching of wild animals, construction of dams, roads, bridges etc are all man-made changes that cause lot of damage to environment.

34. What will be the effect of industry established on river bank on the river ecosystem? (2M)

Ans : If there are industries established on the river bank, then there is threat to the aquatic eco-system.

- It is most likely that the hazardous effluents can be released into the river water. This can cause water pollution resulting into mortality of aquatic organisms.

- Moreover, this water will no longer remain potable .
- Hence the health of resident population may also be affected. The food chains the food web in the river may be terminated due to such pollution.

35. What will happen if number of consumers in environment goes on increasing gradually? (1M)

Ans : If the number of consumers increase gradually, it will create the scarcity of prey organisms Then due to lack of prey, the number of consumers will also decline.

36. Which are the types of pollution? (2M)

Ans : Air pollution, water pollution and soil or land pollution are main types of pollution.

- In addition to these, light pollution, plastics pollution, noise pollution and radioactive pollution are also other hazardous types of pollution.

37. How do butterflies contribute to environment balance? (4M)

Ans : Butterflies carry out pollination. This results into reproduction of the plants.

- The Flora is increased due to such increased pollination.
- Many weeds in the nature are consumed by the butterflies as their food.

- Some butterflies also consumes harmful insects as their prey.
- Due to beautiful coloured butterflies the environment become pleasant and joyful.
- Butterflies avoid polluted and barren areas.
- Thus, They indicate the health of the environment.
- Thus, the eco-system is said to be in balance if there is presence of butterflies in its surroundings.

Q. Answer the following question in one or two sentence.

38. What are the causes of environmental pollution?

Ans : Causes of pollution are population explosion, rapid industrialization and unplanned urbanization, indiscriminate use of natural resources along with deforestation.

39. When was UNEP established and how was it established?

Ans : United Nations Environment Program (UNEP) was established in 1972, after discussion on the environmental problems at the conference on the human and environment arranged by UN in Stockholm.

40. Which characters of human beings have proved their supremacy over other animals on the earth?

Ans : On the Earth, human being have proved its supremacy as compared to other animals with the help of characters like intelligence, memory, imaginary ability etc.

41. What provision was done for effective implementation of environment related laws? When?

Ans : National Green Tribunal has been established in 2010 for effective implementation of environment related laws.

42. What is published by IUCN?

Ans : International Union for conservation of Nature(ICUN) Prepare the 'Red List' that contains the name of the endangered Species from different countries.

43. Name the forest conserved in the name of god and considered to be scared.

Ans : The Forest conserved in the name of the god called sacred grove or devrai.

44. Name the Indian States where paddy is cultivated on a large scale.

Ans : West Bengal, Uttar Pradesh, Haryana, Punjab, Tamil Nadu, Andhra Pradesh, Bihar, Odisha, Chattisgarh, Assam and Maharashtra.

Q. Answer the following questions in detail. (4M each)

45. Write the types and examples of biodiversity.

Ans : Biodiversity is documented on the following three levels, viz genetic diversity, species diversity and ecosystem diversity.

i) Genetic Diversity :- Diversity seen among the organisms of same species due to genetic differences is called genetic diversity.

- e.g the individual human beings are different from each other. No two animals or plants are exactly alike.

ii). Species Diversity :- The difference between the different species is the species diversity.

- Eg. All the species of plants, animals and microbes which are seen in any natural environment.

iii) Ecosystem Diversity :- In one region there may be different ecosystem such diversity in the ecosystems is called as ecosystem diversity.

- Ecosystems are natural or Artificial, Every region shows different types of ecosystems such as aquatic, terrestrial, desert or desert or forest ecosystem.
- Each ecosystem has its own habitat with resident flora and fauna.

46. How the biodiversity can be conserved ?

Ans : Biodiversity can be conserved by following ways :

- Protection of the rare species of plants and animals.
- Creating habitats for the animals and plants by establishing National parks and sanctuaries.

- Declaration of bio-reserves, the areas which are protected through conservation.
- Conservation projects for protecting special species.
- Conservation of all flora and fauna.
- Strict observance of the act and rules.
- Use of traditional knowledge and maintaining record of traditional knowledge.

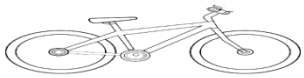
47. Short note on Chipko Movement of Bishnoi.

Ans : Chipko Movement of Bishnoi :- Khejarli or khejadli is a village in Rajastan where Bishnoi community is located. The name of the town is derived from khejri trees.

- The first event of chipko movement took place in khejadli village in 1730 Ad. In this village 363 Bishnois, led y Amrita Devi sacrificed their lives for protecting the trees of khejri trees, which trees are considered as sared by Bishnoi.
- Amrita Devi said," If a tree is saved even at the cost of one's head, its worth it", she was killed with the axes that were brought to chop off the trees. The three young daughters Asu, Ratna and Bhagubai also Sacrificed their lives for trees.
- 83 Bishnoi villagers come together and villagers sacrificed their lives after hearing about Amrita devi's sacrifice. 363 Bishnoi were killed as they opposed the king.

- After realizing mistake, the kind ordered stoppage of the fellings of the trees honouring the courage of the Bishnoi community, the ruler of jodhpur, Maharaja Abhay singh, apologized. He issued royal degree to protect trees and wild life.
- Chipko movement of 20th century in uttar Pradesh also followed the same pattern of embracing the trees and saving them from cutting.

48. Identify the symbol and State the significance.



Ans : Use of bicycle means use of green energy. By riding on a bicycle we save on fuel and use our own muscular energy. It is the best ecofriendly, nonpolluting vehicle.

49. How will you justify that overcoming the pollution is a powerful way of environmental management?

Ans : Pollution is created only due to human activities Air, Water, Soil, Noise radiation, Thermal, light, Plastic are different types of pollution.

- All types of pollution affect environment and particularly threatening the survival of living organisms.

- Pollution must be controlled in order to have good quality of the environment. Eg. When plastic is thrown anywhere, it causes pollution of the land, it clogs the rain water drains, it affects feeding of the animals. Plastic pollution can be completely stopped by us through proper management of plastic waste. By recycling or reusing we can overcome the plastic pollution. This would be a powerful way of environmental management.
- Similarly, When we reduce pollution of different types, we automatically help to regain the environmental health.

50. Reorganize the following food chain. Describe the ecosystem to which it belongs. Grasshopper –>Snake –> Paddy field –> Eagle –>Frog.

Ans : Correct field –> Grasshopper -> Frog -> Snake -> Eagle

- Such food chain is seen in terrestrial ecosystem there are many biotic factors in the terrestrial ecosystem, such as insects, birds, mammals etc.
- The above example mentions about paddy field, so it must be in vicinity of coastal lands there is water logging in the paddy fields Therefore it offers a habitat to the frogs.
- In the above example, paddy field are producers in the ecosystem. The primary consumer is grasshopper. Secondary consumer is frog, tertiary consumer is snake and the apex consumer is eagle on every trophic level the

bacteria, fungi and some scavenging worms can act as the decomposers.

- In this ecosystem, the solar energy is transferred from the paddy crops to eagle in the step wise food chain.