

SELF ASSESSMENT TEST SOLUTIONS

1. (a) It shields the surface of the earth from ultraviolet (UV) radiation from the Sun. This radiation is highly damaging to organisms as it causes skin cancer in human beings.
(c) chlorofluorocarbons (CFCs) which are used as refrigerants and in fire extinguishers.
2. • The series of living organisms taking part at various biotic level forms a food chain.
 - (i) An average of 10% of the food eaten is turned into its own body and made available for the next level of consumers
 - (ii) The energy that is captured by the autotrophs does not revert back to the solar input.
 - (iii) The energy which is passed to the herbivores does not come back to the autotrophs.
 - (iv) As it moves progressively through the various trophic levels it is no longer available to the previous level.

3. (a) 1. Since interference will create disturbances in the protected area (National Park).
2. To maintain the selfsustainability in the protected area.
(b) Reuse of materials is better than recycling because
 - the process of recycling use some energy,
 - in the reuse strategy things are used again and again.

4. (a)

Man-made ecosystem	Natural ecosystem
no microbes to clean the water	microbes to clean the water

(b) The micro-organisms that breakdown the complex organic substances into simple inorganic substances.

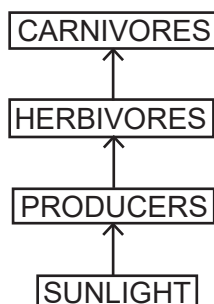
Consequences : 1. No decomposition would take place.

2. Soil would be unsuitable for crops. 3. It would result in imbalance in Ecosystem.

4. Nutrients would not returned back to the nutrient pool.

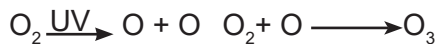
5. Creates land pollution and affect soil fertility.

5. The system where all the living organisms in an area together interact with the non – living constituents of the environment.



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6. • The higher energy UV radiations split apart some molecular oxygen into free oxygen atoms. These atoms then combine with molecular oxygen to form ozone.



Importance : It prevents harmful UV radiation to reach the earth.

Reason : CFC/chlorofluoro carbon/aerosol.

Harmful effects : Skin cancer/reduction in immune system/cataract/damages eyes.

7. It shields the surface of the earth from the UV radiation from the sun.



Reduce the use of CFC's by

- (a) minimizing the leakage through air conditioners and refrigerators.
(b) finding substitute chemicals that are ozone friendly.
8. (a) Energy keeps decreasing at every trophic level.

Because the loss of energy at each trophic level is so great that very little usable energy remains after 3-4 trophic levels.

(b) Pesticides and harmful chemicals from the soil and water bodies are absorbed by the plants along with water and minerals.

As these harmful chemicals are non-biodegradable, they get accumulated and magnified at each trophic level in a food chain. This is called biological magnification

9. (a) Steel tumblers as they can be reused by washing and are durable.
(b) Clay being used to make them is resulting in depletion of top soil.
(c) They add bulk to garbage and if not crushed and thrown after use, they may be reused which is unhygienic.
(d) Yes, paper is made by cutting trees and recycled paper cups may be harmful. Recycling requires energy.

10. Grass → Grasshopper → Frogs → Snakes
(4000J) (400J) (40J) (4J)

So, for snakes and frogs, 4J and 40J energy will be available respectively by 10% law.