

IASbaba's Daily Prelims Test [Day 36]

Topic- Environment, India Year Book and Current Affairs

1. 'Thermal pollution is the dumping of heat into ecological systems like rivers, lakes, ponds, ocean etc. which degrades the water quality'. Consider the following statements regarding the same.

1. It will decrease the metabolic activities of aquatic animals
2. Reproduction among aquatic animals will increase.
3. Bacterial activity will be limited in the water system
4. High temperature will increase the dispersion of oxygen into deeper waters thus leading to aerobic condition.

Select the Wrong statement/s

1. 1, 2, 3, 4
2. 2 and 3
3. 3 and 4
4. None

Solution- 1

The release of heated water into the aquatic bodies changes the average water temperature and concentration of dissolved oxygen. Elevated temperature decreases the level of dissolved oxygen in water which is harmful to aquatic animals like fishes, amphibians and other aquatic organisms. High temperature limits oxygen dispersion into deeper waters, leading to anaerobic conditions. It can lead to increased bacterial population. Several aquatic species fail to reproduce at elevated temperature. The eggs of trout fail to hatch while salmon does not spawn as higher temperature. Thermal pollution may also increase the metabolic rate of aquatic animals, as enzyme activity, resulting in these organisms consuming more food in a shorter time. An increased metabolic rate may result in fewer resources causing a sharp decrease in a population.

A large increase in temperature can lead to the denaturation of enzymes. Decreased enzyme activity in aquatic organisms can cause problems such as the inability to break down fats, which leads to malnutrition.

2. Indian Copal Tree is a plant of immense economic importance. Consider the following about it

1. It is listed as Endangered in the Red List
2. It is used in manufacturing of matches and plywood
3. It has anti-cancer properties
4. In India it is endemic to Eastern Ghat

Select the correct codes

1. 1 and 3
2. 1 and 4
3. 2 and 3
4. 1, 2, 3 and 4

Solution- 3

It is listed as Critically Endangered and endemic to Western Ghats

<http://www.sciencelog.net/2015/06/copal-tree8.html>

3. An inverted Pyramid of biomass is represented by

1. Aquatic ecosystem
2. Ecosystem of a big tree
3. Grassland ecosystem
4. Tropical fresh ecosystem

Solution- 1

NCERT- Bio, Class 12th

4. Consider the following

1. Methane
2. High Temperature
3. Oxygen
4. Ozone
5. Ammonia
6. Volcanic Eruption

The conditions of the earth's atmosphere at the early stage of its origin was

1. 1, 2, 3, 5 and 6
2. 2, 3, 4, 5 and 6
3. 1, 2, 5 and 6
4. 2, 3, 5 and 6

Solution- 3

These early years are marked by swirling oceans of hot magma that no longer exists today on any planet in our solar system. Extreme volcanism in Earth's early history occurred in response to this energetic motion of then-molten mantle material. As planetary material violently overturned, volatile gases from the interior, especially Carbon dioxide (CO₂), Carbon monoxide (CO), Hydrogen (H₂), Nitrogen (N₂) and water vapor (H₂O), were released, and accumulated in a gaseous surface layer that was trapped by gravitational forces. Radiation from the nearby Sun swept lighter gases as H and He away, leaving only heavier molecules in this early atmosphere. Chemical reactions in the hot surface layer formed other simple atmospheric compounds, such as methane (CH₄) and ammonia (NH₃). While far less abundant, the latter compounds are highlighted as they are key components of amino acids, which are the fundamental building blocks of life's proteins. Note also that Oxygen (O₂), key to the survival of many forms of modern life, was not present in the early atmosphere.

5. Which one of the following impurities is easiest to remove from wastewater?

1. Bacteria
2. Colloids
3. Dissolved Solids
4. Suspended Solids

Solution- 4

Suspended solids are removed in the first step because of its bigger size.

6. Loss of biodiversity in a region may lead to

1. Decline in plant production
2. Increased resistance to environmental perturbations such as drought
3. Decreased variability in certain ecosystem processes such as plant productivity, water use, and pest and disease cycles

Select the correct statement/s

1. 1 and 2
2. Only 3
3. Only 1
4. Only 2

Solution- 3

Lowered resistance to environmental perturbations such as drought and increased variability in certain ecosystem processes such as plant productivity, water use, and pest and disease cycles

NCERT- 12th Bio- Chapter 14

7. Consider the following about Classical Smog

1. It occurs in hot humid climate
2. It is a mixture of smoke, fog, carbon dioxide and sulphur dioxide
3. It is also called as Oxidizing Smog

Select the correct codes

1. 1, 2 and 3
2. 2 and 3
3. 1 and 3
4. None

Solution- 4

Occurrence- Cool Humid climate

Mixture of smoke, fog and SO₂

It is reducing mixture so called as Reducing Smog

NCERT- 11th Chemistry, chapter 14

8. In which of the following general locations the inhabitants would more likely be experiencing tsunami, destructive earthquakes and volcanic poisonous gas emissions?

1. An island chain in the middle of an ocean plate
2. The trench side of an arc
3. The edge of a continent located in the middle of a plate
4. A coastal location adjacent to a large transform fault

Solution- 2

9. What would be the most disastrous after effect of ejection of Super-Volcano on earth?

1. Tsunami
2. Lava flows
3. Fine ash particles
4. Acid Rains

Solution- 3

Supervolcanoes represent the second most globally cataclysmic event – next to an asteroid strike – and they have been responsible in the past for mass extinctions, long-term changes to the climate and shorter-term “volcanic winters” caused by volcanic ash cutting out the sunlight.

10. Consider a case

CFC, Ozone and Oxygen are placed in a sealed container and exposed to UV radiation for one month. Which of the following changes will you witness after one month?

1. Increase in Ozone and Oxygen but decrease of CFC
2. Decrease of CFC and Ozone and increase in oxygen
3. Increase in CFC and Oxygen and decrease in Ozone
4. Decrease in Oxygen and CFC and increase in ozone

Solution- 2

CFC will react to give excited chlorine radical and will be consumed in the reaction and hence its concentration will be decreased. While ozone will split into more oxygen molecules and it will be reduced.

11. Consider the following entities

1. Edible Oil and Seeds
2. Cotton
3. Petroleum products
4. Drugs
5. Fertilizers
6. Sugars

Which of the above commodities are covered in Essential Commodity Act, 1955 of GoI?

1. 2, 3, 4, 5 and 6
2. 2, 3, 4 and 6
3. 1, 3, 5 and 6
4. 1, 2, 3, 4, 5 and 6

Solution- 4

12. Consider the following statements

1. A Swamp is a Wetland that is forested
2. Myristica swamps are tropical fresh water swamp forests found in Western Ghats
3. Swamps serve vital roles in flood protection and nutrient removal

Select the correct code

1. 1 and 2
2. 2 and 3
3. 1 and 3
4. 1, 2 and 3

Solution- 3

<http://water.epa.gov/type/wetlands/swamp.cfm>

<http://www.thehindu.com/sci-tech/energy-and-environment/myristica-swamps-a-vanishing-ecosystem-in-western-ghats/article3512630.ece>