

IASbaba's Daily Prelims Test [Day 24]

Topic- Environment, IYB and Current Affairs

1. Fogs are formed due to

1. Conduction
2. Radiation
3. Mixing of warm and cold air masses

Select the correct codes from above

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

Solution- 4

All of the above phenomena are responsible for the formation of FOG.

2. Which of the following are associated with natural processes of Nitrogen Fixation?

1. Lightening
2. Cloud Bursting
3. Bacteria
4. Blue-green Algae
5. Fungi

Select the correct codes

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

Solution- 3

There are only two major pathways of natural nitrogen fixation and they are lightening and by bacteria and blue green algae

3. Consider the following

1. Sound waves
2. Light waves
3. Electromagnetic waves

Temperature inversion will affect?

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

Solution- 4

Besides trapping smog, inversions also trap sound waves. Because of this, the loud sounds of things like airplanes taking off will seem louder as the sound waves refract off the inversion layer and back down to the ground.

But sound waves aren't the only thing that gets refracted by weather inversions. Light can be bent by the inconsistency of the temperature. When an inversion is not present, but the ground temperature is significantly hotter than the air higher up like in the desert, the bending of light causes mirages in the form of thinking that there is a lake or puddle up ahead. Really, it is the sky reflecting off of the ground because of the extreme change in temperature

When there is a temperature inversion, the affect is just the opposite. If the inversion is strong enough, it can cause far off objects to look like they are floating above the ground. If things are far enough they are past the curvature of the earth, they may become visible. This reverse or "superior" mirage is called looming.

Very high frequency radio waves can be refracted by inversions, making it possible to hear FM radio or watch VHF low-band television broadcasts from long distances on foggy

nights. The signal, which would normally be refracted up and away from the ground-based antenna, is instead refracted down towards the earth by the temperature-inversion boundary layer. This phenomenon is called tropospheric ducting.

4. Tropospheric Ozone consists of

1. Sulphur Dioxide
2. Methane
3. Nitrogen Oxides
4. Volatile Organic Compounds
5. Carbon Monoxide

Choose the correct options

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

Solution- 2

CO, VOCs and NO are called Ozone precursors. VOCs include methane also.

5. Consider the following statements regarding ozone depletion

1. Polar Stratospheric Clouds inhibits ozone depletion
2. Ozone depletion will affect human body by enhancing the chances of skin cancer and reduced level of Vitamin D in the body.
3. Montreal Protocol and Vienna Convention are related to Ozone Depleting Substances

Select the wrong statements

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

Solution- 3

PSC enhances the depletion of ozone because they support chemical reactions that produce reactive chlorine molecules which catalyze ozone destruction. Ozone depletion means more UV rays coming on earth and it will actually enhance the formation of Vitamin D. Third statement is correct.

6. Consider the following

1. Photochemical Smog
2. Acid Rains
3. Death of vegetation
4. Loss of biodiversity in aquatic ecosystem
5. Damage to buildings

Sulphur dioxide contributes to all of the problems mentioned above except

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

Solution- 1

Sulphur is not present in the formation of Photochemical smog

7. How do CFCs reduce the concentration of ozone in the atmosphere?

1. Radiation caused CFCs to release atoms that convert ozone to oxygen
2. CFCs split into troposphere and combine with carbon dioxide to form oxygen
3. CFCs split into the troposphere and oxidise, preventing the formation of ozone
4. CFCs combine with ozone to produce oxidised molecules

Solution- 1

CFCs release chlorine atoms (radicals) that are responsible for the chain reaction leading to the formation of oxygen thereby inhibiting the concentration of ozone

8. Mercury is particularly hazardous to human health because

1. It bioaccumulates high up the food chain.
2. As a heavy metal, it can cause serious impact injury.
3. It is light and volatile, and so is widely dispersed through the environment by wind.
4. As a pure metal it is very soluble in water, hence easily absorbed through drinking water.

Solution- 1

9. A high Biological Oxygen Demand indicates

1. Low level of microbial pollution
2. High level of microbial pollution
3. Pure water
4. Absence of microbial action

Solution- 2

10. A lichen is best characterized as a symbiosis between

1. Bacteria and Fungus
2. An algae and Bacteria
3. Fungus and an algae
4. An algae and moss

Solution- 3

11. Consider the following statements

1. Advanced Heavy Water Reactor is India's third stage Nuclear programme
2. Thorium will be used as fuel in AWHR
3. Globally, Thorium is more abundant than Uranium

Select the correct option

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

Solution- 2

https://en.wikipedia.org/wiki/Advanced_heavy-water_reactor

12. Exploration of Shale gas in India is fraught by several issues. Consider the statements regarding this

1. It will severely affect ground water
2. It will give rise to release of green house gases
3. Hydraulic fracturing causes millions of very small and localized seismic events when the fractures are actually produced in the shale

Select the correct options

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

Solution- 1

All of them are correct

13. Hydrogen Fuel cells are emerging as fuel of the future due its potential to address energy crisis. Consider the statements regarding this

1. Hydrogen fuel cells converts chemical energy into electrical energy
2. They are more environment friendly as compared to other fuels like Coal and Natural gas etc.
3. The only concern is release of CO₂ and excess heat after the reaction.

Select the correct codes

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

Solution- 2

The by-product is water and heat not carbon dioxide.

14. Consider the following regarding Coal Gasification

1. Coal gasification produces syngas
2. Coal gasification can be used for making ammonia and methanol
3. Coal gasification produces less carbon dioxide than tradition coal plants

Select the correct options

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

Solution- 1

The major problem in Coal Gasification is the production of more Carbon Dioxide. This was recently in news due to China's aggressive use of this technology that is good for local environment but globally the China will be adding more CO₂.

15. Consider the following

1. Carbon Dioxide
2. Methane
3. Hydrogen
4. Carbon Monoxide
5. Nitrogen
6. Sulphur Dioxide

Which of the above are constituent of SYNGAS?

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

Solution- 2

Sulphur dioxide is not a constituent of syngas