



Daily Subject wise Quiz Day 64 Environment IX (Online Prelims Test)

1) Consider the following statements with respect to Fly ash

1. It is produced by coal-fired electric and steam generating plants.
2. It is coarser and denser than portland cement and lime, its size ranging between 100-200 micron.

Which of the above statements is/are correct?

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Answer : a

Fly Ash

- Fly ash is the finely divided residue that results from the combustion of pulverised coal and is transported from the combustion chamber by exhaust gases.
- Fly ash is produced by coal-fired electric and steam generating plants.
- Fly ash is typically finer than portland cement and lime.
- Fly ash consists of silt-sized particles which are generally spherical, typically ranging in size between 10 and 100 micron.
- Chemistry - Fly ash consists primarily of oxides of silicon, aluminum iron and calcium.
- Magnesium, potassium, sodium, titanium, and sulfur are also present to a lesser degree.
- Color - Fly ash can be tan to dark gray, depending on its chemical and mineral constituents.
- Tan and light colors are typically associated with high lime content. A brownish color is typically associated with the iron content. A dark gray to black color is typically attributed to an elevated unburned carbon content.

2) Which of the following statements are correct about Arsenic

1. It reaches groundwater through seepage of industrial and mines discharges and fly ash ponds of thermal power plants.
2. It is a highly toxic pollutant and its chronic exposure may cause black foot disease.

Select the correct answers using the codes given below

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Answer : c

Arsenic

- It reaches groundwater through seepage of industrial and mines discharges and fly ash ponds of thermal power plants.
- It is a highly toxic pollutant and its chronic exposure may cause black foot disease.
- The other diseases which may be caused by water contaminated with arsenic are:- diarrhoea, lung and skin cancer.

3) Consider the following statements with respect to Photochemical Smog

1. Sunlight is a pre-requisite for the formation of photochemical smog in urban areas.
2. It is a recurring phenomenon in the summer seasons in rural areas of India.

Which of the above statements is/are correct?

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Answer : a

Photochemical Smog

- Photochemical smog is a brownish-gray haze caused by the action of solar ultraviolet radiation on the atmosphere polluted with hydrocarbons and oxides of nitrogen.
- Photochemical smog, which is also known as "Los Angeles smog," occurs most prominently in urban areas that have large numbers of automobiles.
- Photochemical smog is a recurring phenomenon in the winter season in urban areas of India.
- During the winter months, the speed of the wind is slow and is mostly stagnant, this causes smoke and fog to accumulate at a place. The cooler air traps the pollutants and does not allow them to disperse in the atmosphere.
- This increases the pollution at ground level where people are breathing, the phenomenon is called inversion.

4) Which of the following statements is/are correct about Particulate Matter

1. It forms in the atmosphere as a result of complex reactions of chemicals such as sulfur dioxide and nitrogen oxides.
2. As a pollutant it can get deep into the lungs, and some may even get into the bloodstream.

Select the correct answers using the codes given below

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Answer : c

Particulate Matter

- It is a term for a mixture of solid particles and liquid droplets found in the air.
- Some are emitted directly from a source, such as construction sites, unpaved roads, fields, smokestacks or fires.

- Most particles form in the atmosphere as a result of complex reactions of chemicals such as sulfur dioxide and nitrogen oxides, which are pollutants emitted from power plants, industries and automobiles.
- Small particles less than 10 micrometers in diameter pose the greatest problems, because they can get deep into the lungs, and some may even get into the bloodstream.

5) Consider the following statements with respect to Air Quality Monitoring Systems

1. National Air Quality Monitoring Programme stations can observe both suspended particulate matter (SPM), and respirable suspended particulate matter (RSPM).
2. System of Air Quality and Weather Forecasting and Research, known as "SAFAR", was introduced by the Ministry of Earth Science.

Which of the above statements is/are correct?

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Answer : c

Air Quality Monitoring Systems

- National Air Quality Monitoring Programme (NAMP): it has dashboards, built on data from the Central Pollution Control Board's National Ambient Air Quality Monitoring (NAAQM) Network which was started in 1984-85 and covers 344 cities/towns in 29 states and 6 UTs.
- Under the NAMP, each station records about 104 observations a year covering four pollutants- Sulphur dioxide (SO₂), nitrogen dioxide (NO₂), suspended particulate matter (SPM), and respirable suspended particulate matter (RSPM).
- SAFAR: System of Air Quality and Weather Forecasting and Research, known as "SAFAR", for greater metropolitan cities of India to provide location specific information on air quality in near real time. It was introduced by the Ministry of Earth Science.
- AQI: Air Quality Index (AQI) is a tool for effective communication of air quality status to people in terms, which are easy to understand. There are six AQI categories, namely Good, Satisfactory, Moderately polluted, Poor, Very Poor, and Severe. AQ sub-index has been evolved for eight pollutants (PM₁₀, PM_{2.5}, NO₂, SO₂, CO, O₃, NH₃, and Pb) for which short-term (upto 24-hours) National Ambient Air Quality Standards are prescribed.