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# PRE-Mix

*(Compilations of the Multiple Choice Questions)*

*For*

22nd  
October  
2021

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# Environment

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## Environment Pollution

1. Consider the following statements:

1. Carbon Monoxide (CO) is a long-lived pollutant.
2. In the presence of oxygen, carbon monoxide burns with a blue flame.
3. Iron smelting also produce carbon monoxide as a by-product.
4. Worldwide, the largest source of carbon monoxide is from the exhaust of internal combustion engines from incomplete combustion of various other fuels.

Which of the above statements are correct?

- A. 1, 3 and 4 only
- B. 2 and 3 only
- C. 2 and 4 only
- D. 1, 2, 3 and 4

**Answer: B**

### Explanation

- Carbon monoxide (CO) is a colorless, odorless, tasteless and highly toxic gas that is slightly less dense than air.
- It is short-lived (stay only few months) in the atmosphere.
- Carbon monoxide is produced from the exhaust of internal combustion engines and from incomplete combustion of various other fuels.
- Iron smelting also produce carbon monoxide as a by-product. It forms when there is not enough oxygen to produce carbon dioxide (CO<sub>2</sub>).
- In the presence of oxygen, carbon monoxide burns with a blue flame, producing carbon dioxide.
- Worldwide, the largest source of carbon monoxide is natural in origin, due to photochemical reactions in the troposphere.
- Other natural sources of CO include volcanoes, forest fires, and other forms of combustion.

2. Which of the following statements are incorrect with respect to Fly ash?

1. Fly ash affects vegetation as a result of its direct deposition on leaf surfaces.
2. As per the Fly Ash Utilisation Policy by the MoEFCC, it is optional for power plants to give fly ash free of cost to users within 300-kilometre radius.
3. Fly ash can also increase the crop yield and it also enhances water holding capacity of the land.
4. For the optimum utilization of Fly Ash, GST rates on fly ash and its products have been reduced to 12%.

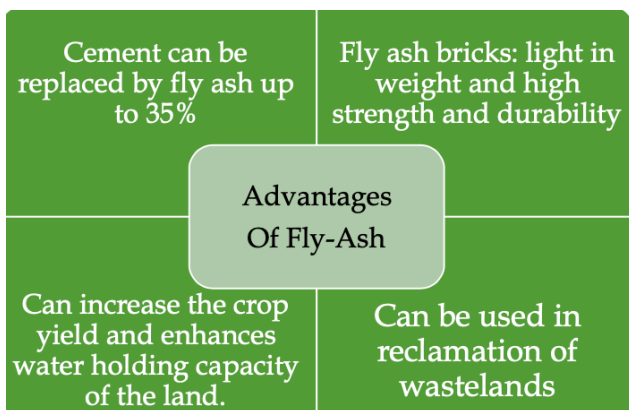
Select the correct code.

- A. 1 and 4 only
- B. 2, 3 and 4 only
- C. 2 and 3 only
- D. 4 only

**Answer: D**

**Explanation**

- Fly ash is ejected mostly by thermal power plants as by-products of coal burning operations.
- Fly ash pollutes air and water and may cause heavy metal pollution in water bodies.
- Fly ash is now being used for making bricks and as a land fill.  
!Fly ash particles are oxide rich and consist of silica, alumina, oxides of iron, calcium, and magnesium and toxic heavy metals like lead, arsenic, cobalt, and copper.



**Fly Ash Utilisation Policy**

- The ministry has made it mandatory for power plants to give fly ash free of cost to users within 300- kilometre radius.

- It is mandatory for cement industries, within radius of 300 kilometres of a coal or lignite based thermal power plant, to use fly ash for manufacture of the cement as per the specifications of Bureau of Indian Standards (BIS).

**Optimum Utilisation of Fly Ash**

- To make optimum utilization of fly ash as an environmentally sustainable and economically viable product.
- GST rates on fly ash and its products have been reduced to 5%.
- To facilitate 100% ash utilization by all coal based thermal power plants, a web portal for monitoring of fly ash generation and utilization data of Thermal Power Plants and a mobile based application titled "ASHTRACK" has been launched.

**3. Consider the following statements with respect to differences between Classical smog and Photochemical Smog.**

1. The primary pollutant in photochemical smog is ozone while classical smog contains sulfur dioxide and particulate matter.
2. Photochemical smog occurs in foggy and cool weather but classical smog occurs in hot, dry climates, and particularly on sunny days.
3. Lung problems are mainly caused by Classical Smog whereas Photochemical Smog causes irritation in eyes.

4. In contrast to Classical Smog, Photochemical smog does not involve any smoke or fog.

Which of the above statements are correct?

- A. 1, 2 and 4 only
- B. 2, 3 and 4 only
- C. 1, 3 and 4 only
- D. 1, 2, 3 and 4

**Answer: C**

**Explanation**

Classical Smog	Photochemical Smog
1. This is formed due to Buildup of sulphur oxides and particulate matter from fuel Combustion.	1. This is formed due to Photochemical reaction of sunlight on the nitrogen oxides and hydrocarbons produced by automobiles and factories.
2. It involves Smoke and fog.	2. It does not involve any smoke or fog.
3. It occur in cool humid climate (in Winter)	3. It occur in warm, dry and sunny climate (in summer)
4. This type of smog was first observed in London in 1952.	4. This type of smog was first observed in los Angeles in 1950.
5. It has high concentration of SO <sub>2</sub> and, therefore is reducing in character.	5. It has high concentration of oxidizing agents and therefore, is oxidising in character.
6. It causes bronchitis and irritation i.e. , problems in lungs.	6. It causes Irritation in eyes.

4. Recently a global agency issued new guidelines recommending lower air quality levels for six pollutants, including PM 2.5, PM 10, ozone, nitrogen dioxide, sulphur dioxide and carbon monoxide. Identify the global agency.

- A. United Nations Environment Programme (UNEP)
- B. Intergovernmental Panel On Climate Change (IPCC)
- C. Global Environment Facility (GEF)
- D. World Health Organization

**Answer: D**

**Explanation**

- The World Health Organization strengthened its air quality guidelines, saying air pollution was now one of the biggest environmental threats to human health, causing seven million premature deaths a year.
  - The new recommendations slash in half the WHO limits for a measure called PM<sub>2.5</sub>, which stands for particulate matter smaller than 2.5 micrometres or less than one- thirtieth the width of a human hair.
  - That is small enough to travel deep into the lungs and even enter the bloodstream.
  - According to the new limits, average annual PM<sub>2.5</sub> concentrations should be no higher than five micrograms per cubic meter.
  - The old recommendations set the average annual limit at 10.
  - But scientists have determined that long-term exposure to concentrations even that low still contributed to heart and lung diseases, stroke and other negative health impacts.
5. Consider the following statements with respect to Bharat Stage Norms.
1. Selective catalytic reduction technology (SCR) reduces the nitrogen oxides by injecting an aqueous solution having ammonia.
  2. Janardan Mishra committee gave recommendations on Auto Fuel Vision Policy 2025.

3. BS-IV fuels contain 50 parts per million (ppm) sulphur, the BS- VI grade fuel only has 10 ppm sulphur.
4. BS VI also make on-board diagnostics (OBD) mandatory for all vehicles.

Which of the above statements are correct?

- A. 1, 2 and 3 only
- B. 2 and 4 only
- C. 1, 3 and 4 only
- D. 2 and 3 only

**Answer: C**

**Explanation**

**Selective catalytic reduction technology (SCR)**

- It reduces the nitrogen oxides by injecting an aqueous solution having ammonia. It is used for BS-VI emission standard.
- It is fixed in the engine exhaust.
- In 2014, Saumitra Chaudhary committee gave recommendations on Auto Fuel Vision Policy 2025 which had recommended implementation of BS-IV (2017), BS-V (2019) and BS-VI (2024) standards.
- BS VI also make on-board diagnostics (OBD) mandatory for all vehicles.
- OBD device informs the vehicle owner or the repair technician how efficient the systems in the vehicle are.

Fuel (Diesel)	Sulphur	NOx	HC + NOx	PM
BS4	50 ppm	250 mg/km	300 mg/km	25 mg/km
BS6	10 ppm	80 mg/km	170 mg/km	4.5 mg/km