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Daily MCQs: 15-09-2023

1. Consider the following statements.

1. The tropospheric ozone layer protects humans and the environment from ultraviolet radiation from the sun.
2. The Montreal Protocol is an international treaty that regulates the production and consumption of ozone depleting substances.
3. The Kigali Agreement of Montreal Protocol aims at phasing out the production and consumption of Hydrofluorocarbons.

Which of the statements given above is/are correct?

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

2. Consider the following statements about Nipah virus.

1. The first confirmed case of Nipah virus infection in India was reported in 2020.
2. Currently, there are no drugs or vaccines specific for Nipah virus infection.

Which of the statements given above is/are correct?

- A. 1 only
- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

3. With reference to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), consider the following statements.

1. It is an international treaty which aims to further the goal of achieving nuclear disarmament.
2. Full compliance with the obligations of the NPT is a membership criteria to join the Nuclear Suppliers Group.
3. India has signed and ratified the NPT.

Which of the statements given above is/are correct?

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

4. The 'Coffee Club' grouping, sometimes mentioned in the news, is associated with?

- A. World Trade Organization
- B. United Nations Security Council

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- C. International Monetary Fund
- D. World Intellectual Property Organization

5. Consider the following statements about the Pravasi Bharatiya Divas (PBD) Convention.

1. It is the flagship event of the Ministry of External Affairs which provides an important platform to engage and connect with the overseas Indians.
2. It is celebrated on January 9 every year to strengthen the engagement of the overseas Indian community with the Government of India and reconnect them with their roots.
3. The day commemorates the return of Mahatma Gandhi from South Africa to Mumbai.

Which of the statements given above is/are correct?

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

Solutions:

1. Answer: B

Explanation:

- Ozone is a gas made of three oxygen atoms, and just like any other gas it circulates in the atmosphere.
- Ozone is present throughout the atmosphere although there are concentration peaks at two levels, the **stratosphere** (a layer of the atmosphere between 10 and 40 km above us) and **troposphere** (the atmospheric layer from the surface up to about 10 km).
- **Statement 1 is incorrect:** Stratospheric ozone forms a protective layer that shields us from the sun's harmful ultraviolet rays. However, this beneficial ozone has been partially destroyed by chemicals used for refrigeration purposes, such as **chlorofluorocarbons (CFCs)** and **hydrofluorocarbons (HFCs)**, causing what is sometimes called a "hole in the ozone."
- Areas with ozone concentrations less than 220 Dobson Units are called "holes" in the layer.
- Ozone at ground level (**troposphere**) is a harmful air pollutant, because of its effects on people and the environment, and it is the main ingredient in "smog." Tropospheric ozone is a harmful pollutant that causes damage to **lung tissue and plants**.
- Tropospheric ozone is not emitted directly from anthropogenic sources. It is a "secondary" pollutant formed by chemical reactions between **oxides of nitrogen (NOx)** and **volatile organic compounds (VOC)**. This happens when pollutants emitted by cars, power plants, industrial boilers, refineries, chemical plants, and other sources chemically react **in the presence of sunlight**.

Montreal Protocol

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- **Statement 2 is correct:** The **Montreal Protocol on Substances that Deplete the Ozone Layer** is an international environmental treaty that **regulates the production and consumption of nearly 100 man-made chemicals referred to as ozone depleting substances (ODS)** including **chlorofluorocarbons (CFCs), halons and hydrochlorofluorocarbons (HCFCs)**.
- **The stratospheric ozone layer protects humans and the environment from harmful levels of ultraviolet radiation from the sun.** The widespread use of ODS had caused a hole in the Ozone layer of the atmosphere, which allowed some harmful radiation to reach the earth. These radiations were considered potential health hazards.
- Adopted in **1987**, the Montreal Protocol is the **only UN treaty that has been ratified by every country**.
- Under this treaty, all parties have specific responsibilities related to the phase out of the different groups of ODS, control of ODS trade, annual reporting of data, national licensing systems to control ODS imports and exports, and other matters.
- Developing and developed countries have **equal but differentiated responsibilities** along with **binding, time-targeted and measurable commitments**.
- The Montreal Protocol has been a **far more effective and successful agreement** than the climate change instruments. It has already **resulted in the phase-out of 98.6% of ozone-depleting substances**. The remaining 1.4% are the HCFCs that are in the process of being transitioned.



About Hydrofluorocarbons

- Hydrofluorocarbons (HFCs) are a **group of industrial chemicals** primarily used for **cooling and refrigeration**.
- HFCs are **powerful greenhouse gases** and a substantial number are **short-lived climate pollutants** with a lifetime of between 15 and 29 years in the atmosphere.
- HFCs are widespread in **air conditioners, refrigerators, aerosols, foams and other products**.
- HFCs were introduced as **non-ozone depleting alternatives** to support the timely **phase out of CFCs and HCFCs under Montreal Protocol**.
- While these chemicals **do not deplete the stratospheric ozone layer**, HFCs were found to be extremely potent in causing global warming. Some of them have **high Global Warming Potentials (GWPs) ranging from 12 to 14,000**.

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- So, the HFCs solved one problem, but were contributing in a major way to another. But these could not be eliminated under the original provisions of Montreal Protocol which was meant to phase-out ozone-destroying chemicals only. The **Kigali Amendment** enabled the Montreal Protocol to **mandate the elimination of HFCs as well.**

Kigali Agreement

- **Statement 3 is correct:** The Parties to the Montreal Protocol reached agreement at their 28th Meeting of the Parties on 15 October 2016 in Kigali, Rwanda. The Agreement particularly aims at **phasing out the production and consumption of Hydrofluorocarbons** which were first introduced as a substitute to ODSs namely CFCs and Hydrochlorofluorocarbons HCFCs.
- Before the middle of this century, **current HFC use has to be curtailed by at least 85 per cent.** Countries have **different timelines** to do this. **India** has to achieve this target by **2047** while the developed countries have to do it by 2036. China and some other countries have a target of 2045.
- While the reductions for the rich countries have to begin immediately, India, and some other countries, have to begin cutting their HFC use only from 2031.
- The agreement came into force on **1st January 2019** and has been ratified by more than **130 countries** (including **India**) so far.
- The phasing down of HFCs is expected to prevent the **emission to the tune of 105 million tonnes of greenhouse gases**, which would potentially help avoid a rise in global temperature up to **0.5 degrees Celsius** by the year 2100.
- Kigali Agreement **legally binds the signatory countries** with non-compliance measures.

2. Answer: B

Explanation:

- Nipah is a **viral infection** caused by the Nipah virus (NiV).
- **Fruit bats of the Pteropodidae family** are the natural host of Nipah virus.
- The disease was first identified in **1998** during an outbreak in **Malaysia** and it was named after a village in Malaysia, Sungai Nipah. Later, Nipah outbreaks have been reported in **Singapore, Bangladesh and India.**
- **Statement 1 is incorrect:** Till date, **India has experienced four episodes of NiV outbreaks** with Case Fatality Rate (CFR) ranging from 65% to 100%. The first evidence of NiV infection was reported in Siliguri district, West Bengal in **2001**. The last outbreak was reported in Kerala state in 2019.
- A study in 2018 has identified many **South East Asian countries including Indian states as potential hotspots** for the NiV disease.
- NiV is on the **top-10 priority list pathogens** identified by the World Health Organization.

Transmission

- It is a **zoonotic virus** (transmitted from animals to humans) which can also be transmitted through **contaminated food or directly between people.**
- **Consumption of fruits or fruit products (such as raw date palm juice) contaminated with urine or saliva from infected fruit bats** is the most likely source of infection.
- In infected people, it causes a range of illnesses from asymptomatic (subclinical) infection to acute respiratory illness and fatal encephalitis.

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- The virus can also cause severe disease in animals such as pigs, resulting in significant economic losses for farmers.

Treatment

- **Statement 2 is correct:** There are currently **no drugs or vaccines** specific for Nipah virus infection.
- The primary treatment for humans is supportive care.

3. Answer: A

Explanation:

- **Statement 1 is correct:** The Treaty on the Non-Proliferation of Nuclear Weapons (NPT) aims to prevent the spread of nuclear weapons and weapons technology, to foster the peaceful uses of nuclear energy, and to further the goal of disarmament.
- It entered into force in 1970.
- Its 190 states-parties are classified into two categories: **nuclear-weapon states (NWS)**—consisting of the United States, Russia, China, France, and the United Kingdom—and **non-nuclear-weapon states (NNWS)**.
- Under the treaty, the five NWS commit to pursue general and complete disarmament, while the NNWS agree to forgo developing or acquiring nuclear weapons.
- **Statement 3 is incorrect:** Only four countries (South Sudan, **India**, Israel, and Pakistan) have not signed the treaty, and one country (North Korea) has signed and then withdrawn from the treaty.

Why didn't India join?

- The Treaty defines nuclear weapon states as those that had manufactured and detonated a nuclear explosive device prior to 1 January 1967.
- Thus, the spirit of the NPT creates a divide between countries that did develop nuclear power before 1967 and those that didn't develop nuclear power before 1967.
- Being a signatory to NPT means that the party state will cease all development of nuclear weapons and will open doors for inspection of its nuclear facilities by the **International Atomic Energy Agency**.
- The NPT, in India's opinion, doesn't explain the need for this distinction and loss of national sovereignty.

Nuclear Suppliers Group

- Established in 1975, the Nuclear Suppliers Group (NSG) comprises 48 states that have voluntarily agreed to coordinate their export controls to non-nuclear-weapon states.
- The NSG governs the transfers of civilian nuclear material and nuclear-related equipment and technology.
- **Statement 2 is correct:** Full compliance with the obligations of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) is a **membership criteria** to join NSG.

China's blockade

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- India has been trying, since 2008, to join the NSG, which would give India access to more sophisticated nuclear technology.
- However, China has repeatedly blocked India's entry into NSG as India is not a signatory to the NPT.
- It should be noted that members are admitted to NSG only by **consensus**.

4. Answer: **B**

Explanation:

- The Uniting for Consensus grouping, also referred to as the Coffee Club, was developed in the 1990s in **opposition to the possible expansion of permanent seats in the United Nations Security Council**.
- Their member states (including Italy, Spain, Australia, Canada, South Korea, Argentina and Pakistan) have been instrumental in holding back reforms to the UNSC. Most members of the club are middle-sized states who oppose bigger regional powers grabbing permanent seats in the UN Security Council.

5. Answer: **C**

Explanation:

- **Statement 1 is correct:** Pravasi Bharatiya Divas (PBD) Convention is the flagship event of the **Ministry of External Affairs** and provides an important platform to engage and connect with the **overseas Indians**.
- **Statement 2 is incorrect:** It is **celebrated on January 9 once in every two years** to strengthen the engagement of the overseas Indian community with the Government of India and reconnect them with their roots.
- **Statement 3 is correct:** The day commemorates the return of **Mahatma Gandhi** from South Africa to Mumbai on 9 January 1915.
- The first Pravasi Bharatiya Divas was organized in 2003.