

Q: Recently, Parliament passed The Weapons of Mass Destruction and their Delivery Systems (Prohibition of Unlawful Activities) Amendment Bill, 2022. Consider the following statement:

1. The amendment bill seeks to insert a new Section 12A in the existing law.
2. The Bill amends the Weapons of Mass Destruction and their Delivery Systems (Prohibition of Unlawful Activities) Act, 2005.
3. Biological weapons is not included in weapon of mass destruction.

Choose the correct option from the codes given below:

- a) 1 and 2
- b) 2 and 3
- c) 1 and 3
- d) 1, 2 and 3

Ans: a

Explanation:

- The amendment bill seeks to insert a new Section 12A in the existing law which states that "no person shall finance any activity which is prohibited under this Act, or under the United Nations (Security Council) Act, 1947 or any other relevant Act for the time being in force, or by an order issued under any such Act, in relation to weapons of mass destruction and their delivery systems."
- The Bill amends the Weapons of Mass Destruction and their Delivery Systems (Prohibition of Unlawful Activities) Act, 2005.
- The 2005 Act prohibits unlawful activities (such as manufacturing, transport, or transfer) related to weapons of mass destruction, and their means of delivery. Weapons of mass destruction are biological, chemical, or nuclear weapons.

Q: Consider the following statement:

1. Faster rotation of the Earth will not impact smartphones, computers and communication systems.
2. The reason for faster rotation can be melting of the glaciers and climate change at large.
3. The Chandler wobble is a small deviation in the Earth's axis of rotation.

Choose the correct option from the codes given below:

- a) 1 and 2
- b) 2 and 3
- c) 1 and 3
- d) 1, 2 and 3

Ans: b

Explanation:

- Faster rotation of the Earth can also impact smartphones, computers and communication systems at large, which synchronise with Network Time Protocol (NTP) servers). It's defined as the number of seconds since 00:00:00 Coordinated Universal Time (UTC) on 1 January, 1970.
- The reasons can be the melting of the glaciers and climate change at large, motions of the planet's inner molten core, seismic activity and a phenomenon called the 'Chandler wobble'.
- The Chandler wobble is a small deviation in the Earth's axis of rotation, not unlike the quiver one sees when a spinning top gains momentum or slows down.

Q: Consider the following statement:

1. Polycyclic Aromatic Hydrocarbons are environmental pollutants.
2. Pyrene, possessing four benzene rings.

Choose the correct option from the codes given below:

- a) 1 Only
- b) 2 Only
- c) 1 and 2
- d) None of the above

Ans: c

Explanation:

- The Polycyclic Aromatic Hydrocarbons (PAHs) are ubiquitous environmental pollutants originating from multiple sources, including combustion of petrogenic fossil fuels, and incomplete incineration of municipal wastes and biomass.
- Pyrene, possessing four benzene rings, belongs to the highly toxic class of PAHs, with carcinogenic and mutagenic properties.

Q: Consider the following statement regarding Supreme Court ruling on the photographs of the President of India and Prime Minister in advertisements:

1. Court allowed that government advertisement could contain a political party's symbol, logo or flag.
2. Court agreed that photographs of leaders to be avoided in government messaging.

Choose the correct option from the codes given below:

- a) 1 Only
- b) 2 Only
- c) 1 and 2
- d) None of the above

Ans: d

Explanation:

- The Supreme Court ruling mandated that government advertisements will not contain a political party's symbol, logo or flag and are required to be politically neutral and must refrain from glorifying political personalities.
- The Supreme Court agreed with the committee's suggestion "that photographs of leaders should be avoided and only the photographs of the President/ Prime Minister or Governor/ Chief Minister shall be used for effective government messaging".

Q: Consider the following statement regarding AlphaFold protein:

1. It is a watershed movement in structural biology in particular.
2. It is the only AI based protein structure prediction tools.

Choose the correct option from the codes given below:

- a) 1 Only
- b) 2 Only
- c) 1 and 2
- d) None of the above

Ans: a

Explanation:

- Although a tour-de-force in structural biology, like any other method, AlphaFold is neither flawless nor the only AI-based protein structure prediction tool.
- RoseTTaFold, developed by David Baker at the University of Washington in Seattle, U.S., is another tool. Although less accurate than AlphaFold, it can predict the structure of protein complexes.
- The development of AlphaFold changes all of that. It is a watershed movement in science and structural biology in particular.