

**Q: Consider the following statement regarding the Nobel Prize for Physic in 2022:**

1. John Clauser built an apparatus that emitted two entangled photons at a time.
2. Anton Zeilinger group has demonstrated a phenomenon called quantum teleportation.
3. Giorgio Parisi discovered hidden patterns in disordered complex materials.

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:

- John Clauser built an apparatus that emitted two entangled photons at a time, each towards a filter that tested their polarisation. The result was a clear violation of a Bell inequality and agreed with the predictions of quantum mechanics.
- Alain Aspect developed a setup to close an important loophole. He was able to switch the measurement settings after an entangled pair had left its source, so the setting that existed when they were emitted could not affect the result.
- Anton Zeilinger researched entangled quantum states. His research group has demonstrated a phenomenon called quantum teleportation, which makes it possible to move a quantum state from one particle to one at a distance.

**Q: Consider the following statement:**

1. Shaliganga Nallah is a feeding channel for the Chitragudi Bird Sanctuary.
2. Hokersar Wetland Reserve is an internationally declared Ramsar site and home to migratory birds.
3. Kuhls are traditional, community-managed irrigation systems in Kashmir and Himachal Pradesh.

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:

- Shaliganga Nallah is a feeding channel for the Hokersar wetland and mining activity may be detrimental to natural flow and quality of water flowing into Hokersar.
- The mining may be detrimental to the water flowing into Hokersar Wetland Reserve, which is an internationally declared Ramsar site and home to migratory birds. A Ramsar site is a wetland site designated to be of international importance under the Ramsar Convention.
- The irrigation kuhls are also present within the mining site.
- Kuhls are traditional, community-managed irrigation systems in Kashmir and Himachal Pradesh.

**Q: Several countries across the world are in the grips of a cholera outbreak. Consider the following statement regarding Cholera:**

1. The disease in India is endemic.
2. It is caused by infection of the intestine with the bacterium *Vibrio cholera*.

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:

- Recently, the World Health Organization (WHO) warned of a “worrying surge” in Cholera cases, with 26 countries reporting outbreaks in 2022.
- Cholera is an acute, diarrheal illness caused by infection of the intestine with the bacterium *Vibrio cholerae*.
- The infection is often mild or without symptoms, but sometimes can be severe.
- A person may get cholera by drinking water or eating food contaminated with the cholera bacterium.
- The highly liquid diarrhea during cholera infection is loaded with bacteria that can spread under unsanitary conditions to infect water used by other people.
- Cholera is transmitted from person to person through ingestion of faeces-contaminated water.
- In India, the **disease is endemic**. Cholera cases in Maharashtra surpassed the 2021 figures, resulting in 261 cases and at least six deaths till July 2022.

**Q: RPF started Pan India drive under the code name “SAMSAR”, which incorporated various operation. Which among the following operation is not included in it?**

- a) Operation “Nanhe Fariste”
- b) Mission “Jeewan Raksha”
- c) Operation “Matrishakti”
- d) Operation Meghdoot

Ans: d

Explanation:

- In furtherance of the pledge of “Sewa Hi Sankalp” by RPF, a **pan India month long drive** under the code name SAMSAR (SAMAJIK SAROKAR) incorporating the elements of several focused operations was undertaken.
- It included **Operation “SEWA”, Operation “Dignity”, Operation “Nanhe Fariste”, Mission “Jeewan Raksha”** and Operation “**Matrishakti**” conducted in the month of September 2022.

**Q: Consider the following statement:**

1. Alain Aspect, John Clauser, and Anton Zeilinger were awarded 2022 Nobel Prize in Physics.
2. They establishing the violation of Bell inequalities and pioneered quantum information science.
3. Anton Zeilinger is the youngest person to win the Physics award has been Lawrence Bragg.

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:

- Recently, the Royal Swedish Academy of Sciences announced the winners of the 2022 Nobel Prize in Physics. It was given to Alain Aspect, John Clauser, and Anton Zeilinger for their work in quantum physics.
- The three newly awarded laureates experimented with entangled photons, establishing the violation of Bell inequalities and pioneered quantum information science.
- The youngest person to win the Physics award has been Lawrence Bragg. He was 25 when he was given the 1915 Physics Nobel.