

**Q: Consider the following statement regarding “Bomb Cyclone”**

1. It is a large, intense midlatitude storm.
2. Storms form when a mass of low-pressure air meets a high-pressure mass.
3. It does not cause precipitation.

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:

- A bomb cyclone is a large, intense midlatitude storm that has low pressure at its center, weather fronts and an array of associated weather, from blizzards to severe thunderstorms to heavy precipitation.
- Bomb cyclones put forecasters on high alert because they can produce significant harmful impacts.
- Storms form when a mass of low-pressure air (warm air mass) meets a high-pressure mass (cold air mass). The air flows from high pressure to low, creating winds.
- It occurs when a midlatitude cyclone rapidly intensifies, dropping at least 24 millibars over 24 hours.

**Q: Consider the following statement regarding Phytorid technology:**

1. The technology is developed by Israel.
2. It is used to treat waste water under sedimentation process to eliminate solid matter.
3. Through this process organic matter gets eliminated.

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:

- The phytorid technology is developed by the CSIR’s National Environmental Engineering Research Institute (NEERI).
- After the waste water is treated under sedimentation process to eliminate solid matter, the same is made to flow in a serpentine motion into a sub-surface chamber containing numerous barricades, while saplings are planted atop on a porous medium containing gravel and stones. It is here that the organic matter gets eliminated.
- Later, the water is made to pass through activated carbon filter to bring the Biochemical Oxygen Demand to 5mg, much lower than the national standard of 10mg set by the Union Ministry of Housing and Urban Affairs.

**Q: Consider the following statement regarding Jal Shakti Abhiyan:**

1. It brought various organisation like NGOs and Panchayats together.
2. This has led to a reduction in the over exploited, critical and semi critical number of blocks.

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 Jal Shakti Abhiyan launched by the Prime Minister, which brought together various organizations, Panchayats, NGOs, Celebrities etc., has started showing good results as can be seen through the ground water report released.
- This has led to a reduction in the over exploited, critical and semi critical number of blocks while safe blocks have increased by more work needs to be done in this field with a focused approach”.

**Q: Consider the following statement:**

1. Hydrogen is a key industrial fuel.
2. Grey hydrogen is produced from natural gas.
3. ‘Blue’ hydrogen is produced from fossil fuel.

Choose the correct option from the codes given below:

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: d

Explanation:

- Hydrogen is a key industrial fuel that has a variety of applications including the production of ammonia (a key fertilizer), steel, refineries and electricity. However, all of the hydrogen manufactured now is the so-called 'black or brown' hydrogen produced from coal.
- Grey hydrogen is produced from natural gas while 'Blue' hydrogen is from fossil fuel sources where the ensuring carbon emitted is captured via carbon-capture processes.
- Green hydrogen is when hydrogen is produced via electrolysis, the splitting of water into hydrogen and oxygen with electricity generated from renewable energy sources such as solar or wind. This is the most environmentally sustainable way of producing hydrogen.

**Q: Consider the following statement regarding "Atmospheric River":**

1. It transports water vapor outside of the tropics.
2. It carries water at the mouth of the Mississippi River.
3. This water is then deposited on the surface but fails to bring rain.

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 atmospheric river is a long, narrow region in the atmosphere that is like rivers in the sky. These atmospheric river transport water vapor outside of the tropics that move with the weather, carrying an amount roughly equivalent to the average flow of water at the mouth of the Mississippi River.
- When these atmospheric rivers move inland and sweep over mountains, the water vapour rises and cools to create heavy precipitation. This water is then deposited on the surface in the form of heavy rain and snow as it makes landfall.
- Scientists have said that some of these atmospheric rivers contain the largest amounts of water vapor and the strongest winds can create extreme rainfall and floods, often by stalling over watersheds vulnerable to flooding. Most of these systems are generally weak and serve as water replenishment for the surface.