

Q: Consider the following statement:

1. Manure and synthetic fertilisers emit the equivalent of 2.6 gigatonnes of carbon per year.
2. Emissions from the production of synthetic fertilisers is partly due to chemical reactions used in the production process.
3. Fertilizers are not responsible for greenhouse gas emission.

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:

- Fertilisers are responsible for approximately five percent of total greenhouse gas emissions, the first time this has been accurately quantified, and found that carbon emissions could be reduced to one-fifth of current levels by 2050.
- Their analysis found that manure and synthetic fertilisers emit the equivalent of 2.6 gigatonnes of carbon per year - more than global aviation and shipping combined.
- Emissions from the production of synthetic fertilisers are mostly from ammonia synthesis, partly due to chemical reactions used in the production process.
- The most effective mitigation at the production stage would be for the industry to decarbonise heating and hydrogen production.

Q: Consider the following statement regarding HLFT-42:

1. It is the 4.5th Generation fighter aircraft developed by HAL
2. Its design is inspired from the Tejas Light Combat Aircraft programme.
3. The new aircraft will be equipped with modern avionics.

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:

HLFT-42

- HAL plans to equip the new trainer aircraft with modern avionics like Active Electronically Scanned Array (AESA), Electronic Warfare (EW) Suite, Infrared Search and Track (IRST) with Fly by Wire (FBW) control system.
- This is a single engine trainer that has been in the works for a long time and underwent numerous design changes.
- The design of HLFT-42 is inspired from the Tejas Light Combat Aircraft programme.
- This aircraft could plug the gap between subsonic jet training which takes place on an actual fighter like the MiG-21.

Q: Consider the following statement regarding Maharishi Dayanand Saraswati:

1. He was the first to give the call for "Swarajya".
2. Sri Aurobindo and S. Radhakrishnan was the followers of Dayananda Saraswati.

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:

- Maharishi Dayanand Saraswati was the first to give the call for 'Swarajya' as 'India for Indians' in 1876, later taken up by Lokmanya Tilak.
- One of his most influential works is the book Satyarth Prakash, which contributed to the Indian independence movement.
- His followers included Sri Aurobindo and S. Radhakrishnan.

Q: Consider the following statement regarding microLED:

1. The basis of its technology are sapphires.
2. Its displays are brighter, have better colour reproduction and provide better viewing angles.

3. It has limitless scalability.

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:

- The basis of microLED technology are sapphires. A sapphire can shine on its own forever. A microLED screen is filled with such small but strong light. The picture in a microLED screen is generated by several individual light-emitting diodes.
- MicroLED displays are brighter, have better colour reproduction and provide better viewing angles.
- MicroLEDs have limitless scalability, as they are resolution-free, bezel-free, ratio-free, and even size-free. The screen can be freely resized in any form for practical usage.
- In addition to being self-emissive, MicroLEDs also individually produce red, green, and blue colours without needing the same backlighting or colour filters as conventional displays.

Q: Consider the following statement regarding River Cities Alliance (RCA):

1. It was a dedicated platform for river cities in India for sustainable management of urban rivers.
2. The Alliance focuses on Networking, Capacity Building and Technical Support.
3. It is an initiative of Ministry of Jal Shakti only.

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:

- River Cities Alliance (RCA) started with 30 cities in 2021 and currently has 95 cities as members across India.
- RCA was launched on November 2021 as a dedicated platform for river cities in India to ideate, discuss and exchange information for sustainable management of urban rivers.
- River Cities Alliance, first-of-its-kind Alliance in the world, symbolizes the successful partnership of the two Ministries i.e., Ministry of Jal Shakti and Ministry of Housing and Urban Affairs.
- The Alliance focuses on three broad themes- Networking, Capacity Building and Technical Support.