

**Q: Consider the following statement regarding Decarbonisation process:**

1. In this process carbon used in the chemical reaction, that separates iron from iron oxide.
2. The carbon removes oxygen by forming carbon dioxide.
3. Strong steel consists of more than 10% of carbon.

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:

- One way is to use hydrogen in the chemical reaction that separates iron from iron oxide. Carbon is currently used in this place, and that is the problem. However, hydrogen cannot be substituted directly because doing so makes the separation reaction very slow.
- Strong steel consists of less than 1% of carbon. To achieve this, iron oxide is heated with coke (a form of coal with high carbon content) at 1,700 degree Celsius inside a blast furnace.
- The carbon removes oxygen by forming carbon dioxide. As per a December 2021 paper, this process accounts for almost 90% of the carbon footprint of steelmaking.
- When oxygen leaves the iron oxide, scientists know that it leaves behind minuscule pores in iron.

**Q: Consider the following statement regarding National Commission for Scheduled Castes (NCSC):**

1. It is a statutory body.
2. It consists of a Chairperson, a Vice-Chairperson and 3 other Members who are appointed by the President
3. At least one member should be a woman.

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:

- NCST was set up in 2004 by amending Article 338 and by inserting a new article 338A in the Constitution through the 89th Constitution Amendment Act, 2003. Hence, it is a constitutional body.
- By this amendment, the erstwhile National Commission for Scheduled Castes and Scheduled Tribes was replaced by two separate Commissions namely the National Commission for Scheduled Castes (NCSC), and the NCST
- It consists of a Chairperson, a Vice-Chairperson and 3 other Members who are appointed by the President by warrant under his hand and seal.
- At least one member should be a woman.
- The Chairperson, the Vice-Chairperson and the other Members hold office for a term of 3 years.

**Q: Consider the following statement:**

1. Raman Research Institute (RRI) is proposed to be merged with the Jawaharlal Nehru Centre for Advanced Scientific Research.
2. S.N. Bose National Centre for Basic Sciences is proposed to be merged with Indian Association for Cultivation of Sciences.

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:

- Among those to be merged, are the Raman Research Institute (RRI), Bangalore founded in 1948 by Sir C.V. Raman and among the country's top institutes for research into theoretical and high-energy physics, as well as the S.N. Bose National Centre for Basic Sciences and the Bose Institute, both in Kolkata.
- RRI is proposed to be merged with the Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore, and the latter two Kolkata institutes with the Indian Association for Cultivation of Sciences, also located at Kolkata.

**Q: Consider the following:**

1. California condors
2. Bald eagles
3. African penguins

Which among the following species is/are succumbed to H5N1 avian influenza?

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

Ans: d

Explanation:

- The recent reports suggest that at least 20 California condors, a species that was on the verge of extinction since 1980s, have succumbed to H5N1 avian influenza. With around 300 condors estimated to be remaining in the wild, this would roughly account for a significant 7% of the species.
- H5N1 has also killed a large number of bald eagles and Caspian terns in the U.S. since January 2022, along with thousands of cranes in Israel.
- In 2022, H5N1 hit a colony of the endangered African penguins in South Africa, killing at least 30 penguins.

**Q: Consider the following statements with respect to H5N1 Virus:**

1. It is a Highly Pathogenic Avian Influenza (HPAI)-A in Birds and Other Animals.
2. The virus does not infect humans easily, and spread from person to person appears to be unusual.
3. World Health Organization (WHO) has assessed the risk of H5N1 to humans to be very high.

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:

- Uncontrolled spread of H5N1 virus leading to the mass extinction of several species of endangered birds.
- Avian influenza A viruses are designated as highly pathogenic avian influenza (HPAI) or low pathogenicity avian influenza (LPAI) based on molecular characteristics of the virus.
- H5N1 is a Highly Pathogenic Avian Influenza A (H5N1) in Birds and Other Animals.
- It is a reassortant virus with genes from Asian HPAI H5 viruses and low pathogenic North American viruses.
- It occurs when the genes from two different viruses mix to create a new virus.
- World Health Organization (WHO) has assessed the risk of H5N1 to humans to be low.
- United Nations Food and Agriculture Organization considered 6 countries to be endemic for Asian HPAI H5N1 virus in poultry (Bangladesh, China, Egypt, India, Indonesia, and Vietnam).

