

Q: Consider the following statement regarding Foucault pendulum:

1. It is a deceptively simple device used to illustrate the earth's rotation.
2. It is named for Léon Foucault.
3. If the pendulum is installed over the equator, it will basically be swinging as the earth rotates '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: a

Explanation:

- The Foucault pendulum is named for Léon Foucault (1819-1868), the French physicist who devised the apparatus in the 19th century.
- It is a deceptively simple device used to illustrate the earth's rotation. At the time Foucault set up the first public display of the pendulum, the earth's rotation was a well-established fact.
- If the pendulum is installed at the North Pole, it will basically be swinging as the earth rotates 'below'. But someone standing on the earth's surface doesn't notice the planet's rotation (without looking up at the sky from time to time); instead, to them, the plane of the swing will seem to rotate by a full circle as the earth completes one rotation.
- If the pendulum is installed over the equator, the plane won't appear to shift at all because it will be rotating along with the earth. On any other latitude, the plane will shift through 360 degrees in "one sidereal day divided by the sine of the latitude of its location".

Q: Consider the following statement:

1. UNEP is the parent organisation of WMO.
2. IMO had its roots in the Vienna International Meteorological Congress.
3. It became a specialised agency of the UN in 1951.

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 World Meteorological Organisation (WMO) is an intergovernmental organisation that originated from the International Meteorological Organisation (IMO).
- The International Meteorological Organisation (IMO) had its roots in the Vienna International Meteorological Congress of 1873.
- It became a specialised agency of the UN in 1951.
- The United Nations Economic and Social Council is the parent organization of the UN's WMO.
- WMO celebrated its 70th Anniversary in 2020.

Q: Consider the following statement regarding IRNSS:

1. It has its satellite in geostationary and geosynchronous orbit.
2. IRNSS-1I is expected to replace IRNSS-1A.

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:

- Presently, IRNSS consists of eight satellites, three satellites in geostationary orbit and five satellites in geosynchronous orbit.
- IRNSS-1I is expected to replace IRNSS-1A, which was rendered ineffective after its three rubidium atomic clocks failed.

Q: Consider the following statement regarding Dengue:

1. It belongs to the family Flaviviridae.
2. The virus is transmitted to humans by the Aedes mosquito.
3. The virus then spreads to other organs, including the liver, spleen, and lymph nodes.

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 dengue virus belongs to the family Flaviviridae and has four serotypes: DEN-1, DEN-2, DEN-3, and DEN-4.
- The virus is transmitted to humans by the Aedes mosquito, which becomes infected by biting an infected person.
- Once the virus enters the human body, it replicates in white blood cells called monocytes and macrophages, which are a part of the body's immune system.
- The virus then spreads to other organs, including the liver, spleen, and lymph nodes, causing a range of symptoms.

Q: Consider the following statement regarding COP 27:

1. The goal of mitigation is to keep global temperatures below 2 degrees Celsius.
2. Nationally Determined Contributions (NDCs) progress was inadequate.
3. No fund was allocated for Least Developed Countries.

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 goal of mitigation is to keep global temperatures below 2 degrees Celsius.
- However, despite making big commitments such as the Nationally Determined Contributions (NDCs), progress since COP26 has been severely inadequate (Emissions Gap Report 2022).
- According to the Global Climate Risk Index, developing and poor countries (Mozambique, South Sudan, India, etc.) were the countries most affected by extreme weather events in 2019.
- Over \$350 million and \$600 million were pledged to the Adaptation Fund and the Least Developed Countries Fund, at COP26.
- These efforts, however, must be backed up by political will.