

SCIENCE AND TECH

1. Cassini-Huygens recently seen in news is-

- a) The first mission by NASA to study the Sun.
- b) NASA's mission to study only Saturn
- c) NASA's mission to Saturn and its Moon Titan
- d) A Light Combat Aircraft designed by the Aeronautical Development Agency (ADA).

2. Which of the following statements about Snow Leopards are correct

- a) They are categorized as Critically Endangered in the IUCN List.
- b) India is a part of Global Snow Leopard and Eco-system Protection Program
- c) India is not a part of the 12 Snow Leopard Range Countries
- d) All of the above

3. Which of the following statements are true about AQI

- a) Under this 6 pollutants are monitored namely- NO_2 , SO_2 , CO , O_3 , NH_3 , and $\text{PM}_{2.5}$
- b) It is described as 'One Number- One Colour-One Description' Index ' for the common man to judge the air quality within his/her vicinity.
- c) It was launched by The Union Ministry of Health.
- d) All of the above

4. Mark the Correct Statement

- a) A **circadian rhythm** is any biological process that displays an endogenous, entrainable

oscillation of about 24 hours.

b) Circadian rhythm is observed only in animals.

c) In 2017 Kip Thorne, Rainer Weiss, Barry Barish were awarded the Nobel Prize in Physiology or Medicine "for their discoveries of molecular mechanisms controlling the circadian rhythm".

d) All the above

5. Which of the Following statements are correct

a) The Centre has chosen the Brahmaputra River to accommodate a well-equipped boat laboratory which will be used for analysis and research on all components of the entire ecosystem of the river and its surroundings.

b) The Phyto-Pharma Mission will promote cultivation and conservation of endangered medicinal plants in the north-eastern states.

c) Frugal Microscope Mission aims to provide foldscopes (world's cheapest microscope costing less than Rs 70) to schools, colleges, and scientists for education and research in the North East

d) All the above.

ANSWERS

1. (c)

Cassini-Huygens mission –

i) Launched in 1997 It is a cooperative project of NASA, ESA (European Space Agency) and the Italian Space Agency.

ii) Cassini is the fourth space probe to visit Saturn and the first to enter its orbit. It has studied the planet and its many natural satellites since arriving there in 2004.

iii) Its design includes a Saturn orbiter called “Cassini” and a lander called “Huygens” for the moon Titan.

iv) In 2004, Huygens separated from the orbiter, and it landed on Saturn’s moon Titan. It successfully returned data to Earth, using the orbiter as a relay. This was the first landing ever accomplished in the outer Solar System and the first landing on a moon other than our own.

v) Cassini has made hundreds of passes over Titan during its 13-year tour of the Saturn system — including 127 precisely targeted encounters.

vi) Cassini is ending its tour of the Saturn system with an intentional plunge into the planet to ensure Saturn’s moons — in particular, Enceladus, with its subsurface ocean and signs of hydrothermal activity — remain pristine for future exploration.

2.(b)

i) Snow Leopards are classified as Vulnerable in the IUCN List.

ii))Global Snow Leopard Forum- In 2013, government leaders and officials from all 12 countries encompassing the snow leopard's range (Afghanistan, Bhutan, China, India, Kazakhstan, Kyrgyz Republic, Mongolia, Pakistan, Russia, Tajikistan, and Uzbekistan) came together at the Global Snow Leopard Forum (GSLF) initiated by the President of the Kyrgyz Republic.

At the GSLF meeting, the 12 range countries signed the Bishkek Declaration.

iii) Global Snow Leopard and Eco-system Protection Program-It is a joint initiative of range country governments, international agencies, civil society, and the private sector.

Its goal is to secure the long-term survival of the snow leopard in its natural ecosystem. The goal of the GSLEP is for the 12 snow leopard range countries, with support from conservation agencies, NGO’s and others to work together to identify and secure at least 20 healthy populations of snow leopards across the cat’s range by 2020, or "20 by 2020".

3.(b)

The Minister for Environment, Forests & Climate launched The National Air Quality Index (AQI) in New Delhi on 17 September 2014 under the Swachh Bharat Abhiyan. It is outlined as 'One Number- One Colour-One Description' for the common man to judge the air quality within his/her vicinity. The index constitutes part of the Government's mission to introduce the culture of cleanliness.

There are six AQI categories, namely Good, Satisfactory, Moderately polluted, Poor, Very Poor, and Severe. The proposed AQI will consider **eight pollutants** (PM₁₀, PM_{2.5}, NO₂, SO₂, CO, O₃, NH₃, and Pb) for which short-term (up to 24-hourly averaging period) National Ambient Air Quality Standards are prescribed.

4.(a)

A **circadian rhythm** is any biological process that displays an endogenous, entrainable oscillation of about 24 hours. These 24-hour rhythms are driven by a circadian clock, and they have been widely observed in plants, animals, fungi, and cyanobacteria.

In 2017, the Nobel Prize in Physiology or Medicine was awarded to Jeffrey C. Hall, Michael Rosbash and Michael W. Young "for their discoveries of molecular mechanisms controlling the circadian rhythm"

5.(d)

The "B4" (Brahmaputra Biodiversity Biology Boat) along with the Phyto Pharma Mission and Frugal Microscope Mission are the three biotechnology missions in the north-east which are being taken up by the Ministry of S&T.