Q: Consider the following statement regarding Solar Eclipse:

1. It is a phenomenon when moon comes between Sun and Earth.
2. In a total solar eclipse, the Moon completely covers the Sun.
3. In an annular solar eclipse, Moon only partially covers the Sun.

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 solar eclipse is an astronomical phenomenon that occurs when the Moon passes between the Sun and Earth, blocking all or part of the Sun's light from reaching Earth. The Moon's shadow is cast on the Earth's surface, creating temporary darkness in some parts of the world that fall in its vicinity.
- There are three types of solar eclipses: total, partial, and annular.
- In a total solar eclipse, the Moon completely covers the Sun, and only the Sun's outer atmosphere (called the corona) is visible like a thin peel.
- In a partial solar eclipse, the Moon only partially covers the Sun, and a portion of the Sun's light is still visible.
- In an annular solar eclipse, the Moon appears smaller than the Sun, and a ring of the Sun's light is visible around the Moon.

Q: Consider the following statement regarding International Prize in Statistics:

1. It is awarded every year for major achievements using statistics to advance science.
2. The first International Prize in Statistics was awarded to David R Cox.
3. Nan Laird received the award in 2021 for the development of powerful methods

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:

- It is awarded once every two years to an individual or team “for major achievements using statistics to advance science, technology and human welfare”.
- The prize recognises a major achievement by an individual or team in the statistics field, particularly an achievement of powerful and original ideas that have led to practical applications and breakthroughs in other disciplines.
- The prize is modelled after the Nobel prizes, Abel Prize, Fields Medal and Turing Award.
- The **first International Prize in Statistics was awarded in 2017 to David R Cox** for the development of the Cox proportional hazards model, which allows researchers to investigate patient survival rates in complex studies.
- **Bradley Efron received the award in 2019** for a statistical method known as the bootstrap, a clever computational method for assessing uncertainty in applied statistics.
- **Nan Laird received the award in 2021** for the development of powerful methods that have made possible the analysis of complex longitudinal studies

Q: Consider the following statement:

1. Tiger reserve in India had increased from nine in 1973 to 53 reserves.
2. Tiger has gone extinct in Cambodia.

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:

- Since 1973, when Project Tiger was established, the number of dedicated tiger reserves has grown from nine reserves covering 18,278 square km to 53 reserves spanning 75,796 square km, which is roughly 2.3% of India’s land area.

- It is in talks with Cambodia, where the tiger has gone extinct due to poaching, to create a suitable habitat there and ship a few tigers from India to revive the big cat's population in that country.

Q: There was a considerable decline in tiger population in:

a) Shivalik hills
b) Gangetic flood plains
c) Central India
d) Western Ghats

Ans: d
Explanation:

- The tiger population has grown the most in the Shivalik hills and the Gangetic flood plains, followed by central India, the northeastern hills, the Brahmaputra flood plains, and the Sundarbans.
- There was a decline in the Western Ghats numbers, though "major populations" were said to be stable.
- The tiger numbers are estimated by adding animals caught in camera traps, and those that may not have been captured in this way. The latter are estimated by statistical techniques.

Q: Consider the following statement:

1. Endometriosis is a painful chronic disease.
2. Researchers are exploring the use of microRNA from saliva and blood as diagnostic biomarkers.

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: d
Explanation:

- Endometriosis is a painful chronic disease in which tissue similar to the lining of the uterus, or endometrium, grows outside of it.
- This test relies on detecting microRNA, which are small, non-coding RNA segments that regulate gene expression. Many studies have identified microRNAs that are expressed differently in people with endometriosis.
- So, researchers can use these unique expression patterns as a sign of the disease. Currently, researchers are exploring the use of microRNA from saliva and blood as diagnostic biomarkers.