

# OFFICERS IAS ACADEMY

## IAS ACADEMY RUN BY FORMER CIVIL SERVANTS

Daily MCQs: 06-06-2024

**1. The 'Regional Anti-Terrorist Structure (RATS)' is related to**

- A) Shanghai Cooperation Organisation
- B) Organization for Security and Co-operation in Europe
- C) Heart of Asia
- D) NATO

**2. With reference to the Securities Appellate Tribunal, consider the following statements**

- 1) It is a statutory body established under the Securities and Exchange Board of India Act, 1992.
- 2) It hears and disposes of appeals against orders passed by the Insurance Regulatory Development Authority of India (IRDAI).
- 3) There is no appeal against the orders of the Securities Appellate Tribunal.

How many of the statements given above is/are correct?

- A) Only one
- B) Only two
- C) All three
- D) None

**3. Consider the following statements.**

- 1. Gene editing is a group of technologies that give scientists the ability to change an organism's DNA.
- 2. CRISPR-Cas9 technology replicates a natural defense mechanism in some bacteria that uses a similar method to protect itself from virus attacks.

Which of the above statements is/are correct?

- A) 1 only
- B) 2 only
- C) Both 1 and 2
- D) Neither 1 nor 2

**4. With reference to the Geostationary Orbit, consider the following statements.**

- 1. It is located at an altitude of between 160 to 2,000 km above the Earth's surface.
- 2. Object in this orbit has a period equal to the rotation period of the earth.

Which of the statements given above is/are correct?

- A) 1 only
- B) 2 only
- C) Both 1 and 2
- D) Neither 1 nor 2

**5. In which one of the following regions in India, one could find both the tropical evergreen forest and mangrove forest?**

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- A) Southern Saurashtra
- B) Andaman and Nicobar Islands
- C) South-West Bengal
- D) North Coastal Andhra Pradesh

### Solutions:

#### 1. Answer: A

#### Explanation

- The Shanghai Cooperation Organisation (SCO) was built on the **'Shanghai Five' grouping of Russia, China, Kazakhstan, Kyrgyzstan and Tajikistan**, which had come together in the post-Soviet era in 1996, in order to work on regional security, reduction of border troops, and terrorism. In 2001, the Shanghai Five inducted **Uzbekistan** into the group and named it the SCO.
- **India and Pakistan** joined the SCO as observers in 2005, and were admitted as **full members** in 2017.
- **Iran** has joined the Shanghai Cooperation Organisation as its ninth member.
- Iran has been an observer in the SCO since 2005, and almost after 15 years, its bid for full and permanent membership in the organization was approved at the 2021 Summit in Dushanbe, Tajikistan.
- Afghanistan, Belarus and Mongolia enjoy Observer status in the SCO, while six other countries — Azerbaijan, **Armenia, Cambodia, Nepal, Turkey and Sri Lanka** — **have Dialogue Partner status**.
- The organization has **two permanent bodies** — the **SCO Secretariat** based in **Beijing** and the **Executive Committee of the Regional Anti-Terrorist Structure** in **Tashkent**.
- The **Heads of State Council** is the supreme decision-making body in the SCO. It meets once a year and adopts decisions and guidelines on all important matters of the organization.

#### What are the main goals of the SCO?

- The SCO describes its main goals as:
  - strengthening **mutual trust and neighborliness** among the member states;
  - promoting their **effective cooperation** in politics, trade, economy, research and technology and culture as well as in education, energy, transport, tourism, environmental protection, and other areas;
  - making joint efforts to **maintain and ensure peace, security and stability** in the region; and
  - moving towards the establishment of a **democratic, fair and rational new international political and economic order**.

#### 2. Answer: B

#### Explanation

- **Statement 1 is correct:** Securities Appellate Tribunal is a **statutory body** established under the **Securities and Exchange Board of India Act, 1992**.

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- It was mainly established to **hear and dispose of appeals** against orders passed by SEBI or by an adjudicating officer under the SEBI Act.
- SAT hears and disposes of appeals against orders passed by the **Pension Fund Regulatory and Development Authority (PFRDA)** under the PFRDA Act, 2013.
- **Statement 2 is correct:** SAT also hears and disposes of appeals against orders passed by the **Insurance Regulatory Development Authority of India (IRDAI)**.
- SAT has only one bench which sits at **Mumbai**.

### Composition

- SAT consists one **Presiding Officer** and such number of **Judicial and Technical Members** as the **Central Government** may determine.
- The person so appointed as the **Presiding Officer** should meet with the **following requirements:**
  - The retired or sitting Judge of the Supreme Court
  - The retired or sitting Chief Justice of a High Court
  - The retired or sitting Judge of High Court, who has completed at least seven years of service as a Judge in a High Court.

### Appeal

- **Statement 3 is incorrect:** Every person aggrieved by any order or decision of Securities Appellate Tribunal can file an **appeal to the supreme court**. Also, the appeal **only can be made on any question of law**.

### 3. Answer: C

### Explanation:

- **Statement 1 is correct:** Gene editing (also known as genome editing) is a group of technologies that give scientists the **ability to change an organism's DNA**. These technologies allow genetic material to be added, removed, or altered at particular locations in the **genome**.
  - *A genome is the complete set of genetic information in an organism. It provides all of the information the organism requires to function. In living organisms, the genome is stored in long molecules of DNA called chromosomes.*
- Genome editing is of great interest in the **prevention and treatment of human diseases**. Currently, most research on genome editing is done to understand diseases using cells and animal models.
- Gene editing is being explored in research on a wide variety of diseases, including single-gene disorders such as cystic fibrosis, hemophilia, and sickle cell disease. It also holds promise for the treatment and prevention of more complex diseases, such as cancer, heart disease, mental illness, and human immunodeficiency virus (HIV) infection.

### CRISPR-Cas9

- Several approaches to genome editing have been developed. A recent one is known as CRISPR-Cas9, which is short for clustered regularly interspaced short palindromic repeats and CRISPR-associated protein 9.
- This method of genome editing is **faster, cheaper, more accurate, and more efficient** than other existing methods.

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- In essence, the technology works in a simple way — it locates the specific area in the genetic sequence which has been diagnosed to be the cause of the problem, cuts it out, and replaces it with a new and correct sequence that no longer causes the problem.
- **Statement 2 is correct:** The technology **replicates a natural defense mechanism in some bacteria** that uses a similar method to protect itself from virus attacks.

### How does it work?

- An **RNA molecule** is programmed to locate the particular problematic sequence on the DNA strand, and a special protein called **Cas9**, which now is often described in popular literature as '**genetic scissor**', is used to break and remove the problematic sequence.
- A DNA strand, when broken, has a natural tendency to repair itself. But the auto-repair mechanism can lead to the re-growth of a problematic sequence. Scientists intervene during this auto-repair process by supplying the desired sequence of genetic codes, which replaces the original sequence.
- It is like cutting a portion of a long zipper somewhere in between, and replacing that portion with a fresh segment.

### 4. Answer: B

#### Explanation:

##### Geosynchronous Orbit

- The orbit around the Earth with an orbit period equal to **one sidereal day** (i.e. 23 Hrs, 56 minutes, 4 seconds) is known as geosynchronous orbit. The word "synchronous" means an object in this orbit returns to the same position after a period of 1 sidereal day to the observer on the Earth's surface.
- There are **many such orbits around the Earth**. It may be **circular or non-circular types**.
- Geosynchronous satellites have an **inclination with respect to the equator**.

##### Geostationary Orbit

- **Statement 1 is incorrect:** The circular orbit at an **altitude of 35768 Kms above the equator** of the Earth which **follows the direction of rotation of the Earth** is known as geostationary orbit.
- **Statement 2 is correct:** **Object in this orbit has a period equal to the rotation period of the earth**. Hence it appears motionless from earth or at fixed position to observers on the ground w.r.t. his/her position. Hence the word "stationary".
- There is **only one such orbit** around the Earth.
- It is one **type of Geosynchronous orbit**. It is a **circular orbit**.
- Geostationary satellites have **zero inclination with respect to the equator**.

### 5. Answer: B

#### Explanation

- Andaman and Nicobar Islands are rich in biodiversity. Different types of forests such as **Tropical Evergreen forests, Moist Deciduous forests, Mangrove forests, Littoral forests** are found here.

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- The soil of Andaman and Nicobar Islands is **favorable for tropical evergreen forest and semi-evergreen forests**; in some regions, the soil and vegetation of Andaman and Nicobar Islands also supports tropical monsoon.
- In the Andaman group of islands alone, the area under mangroves is 612 sq.km, while in the Nicobar group of island mangroves occupy only 3 sq. km.

