Daily MCQs: 10/03/2023

1. Consider the following statements about the United Nations Economic and Social Council (ECOSOC).

1. It is one of the six principal organs of the United Nations.
2. ECOSOC's membership consists of all 193 sovereign states of the United Nations.

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

2. Consider the following statements about Heat Waves in India.

1. A Heat Wave is a period of abnormally high temperatures, more than the normal maximum temperature that occurs primarily in the North-Eastern parts of India.
2. Heat Waves typically occur between March and June.
3. According to the Indian Meteorological Department, Heat wave is considered if the maximum temperature of a station reaches at least 40°C or more for Plains and at least 30°C or more for Hilly regions.

Which of the statements given above is/are correct?

A. 1 and 2 only
B. 2 and 3 only
C. 1 and 3 only
D. 3 only

3. Consider the following statements about Gross Environment Product (GEP).

1. GEP is a measure that allows monitoring of ecological growth parallel to economic growth which is measured using the gross domestic product.
2. GEP helps to understand if development is happening at the cost of ecology.

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

4. With reference to the Geostationary and Geosynchronous orbits, consider the following statements.

1. There is only one Geosynchronous orbit around the Earth.
2. Geostationary satellites have zero inclination with respect to the equator.

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. 'Rhizophoraceae, Lythraceae and Arecaceae' are

A. Neglected tropical diseases
B. Microorganisms resistant to first-line antibiotics
C. Mangrove families
D. Plants with allelopathic properties

Solutions:

1. Answer: **A**

Sol:

- **Statement 1 is correct:** The United Nations Economic and Social Council (ECOSOC) is one of the six principal organs of the United Nations.
- It is responsible for the direction and coordination of the economic, social, humanitarian, and cultural activities carried out by the UN.
- **Statement 2 is incorrect:** ECOSOC was established by the UN Charter (1945), which was amended in 1965 and 1974 to increase the number of members from 18 to 54. ECOSOC **membership is based on geographic representation.**
- ECOSOC is responsible for promoting higher standards of living, full employment, and economic and social progress; identifying solutions to international economic, social and health problems; facilitating international cultural and educational cooperation; and encouraging universal respect for human rights and fundamental freedoms.

2. Answer: **B**

Sol:

- **Statement 1 is incorrect:** A Heat Wave is a **period of abnormally high temperatures**, more than the normal maximum temperature that occurs during the summer season in the **North-Western parts of India.**
- **Statement 2 is correct:** Heat Waves typically occur between **March and June**, and in some rare cases even extend **till July.**

Criteria for heat waves

- **Statement 3 is correct:** The **Indian Meteorological Department (IMD)** has given the following criteria for Heat Waves :
    - Heat wave is considered if the maximum temperature of a station reaches **at least 40°C or more for Plains and at least 30°C or more for Hilly regions;**
    - **Based on Departure from Normal**

- Heat Wave: Departure from normal is 4.5°C to 6.4°C
- Severe Heat Wave: Departure from normal is >6.4°C

- **Based on Actual Maximum Temperature**
  - Heat Wave: When actual maximum temperature ≥ 45°C
  - Severe Heat Wave: When actual maximum temperature ≥47°C
- **For coastal regions,** when maximum temperature departure is 4.5°C or more from normal, Heat Wave may be described provided the actual maximum temperature is 37°C or more.

- Higher daily peak temperatures and longer, more intense heat waves are becoming increasingly frequent globally due to climate change. India too is feeling the **impact of climate change** in terms of **increased instances of heat waves which are more intense in nature with each passing year,** and have a devastating impact on human health thereby increasing the number of heat wave casualties.
- The health impacts of Heat Waves typically involve dehydration, heat cramps, heat exhaustion and/or heat stroke. The extreme temperatures and resultant atmospheric conditions adversely affect people living in these regions as they cause physiological stress, sometimes resulting in death.

Duration of a heatwave spell

- A heatwave spell generally lasts for a minimum of four days and on some occasions, it can extend up to seven or ten days.
- The longest recorded heat wave spell, in recent years, was between 18 – 31 May 2015. This spell had severely affected parts of West Bengal along with Odisha, Andhra Pradesh, and Telangana.

Does all of India experience heatwave conditions?

- **No.** Heat waves are common over the **Core Heatwave Zone (CHZ)** — Rajasthan, Punjab, Haryana, Chandigarh, Delhi, West Madhya Pradesh, Uttar Pradesh, Chhattisgarh, Orissa, Vidarbha in Maharashtra, parts of Gangetic West Bengal, Coastal Andhra Pradesh and **Telangana, as categorised by India Meteorological Department.**
- Several recent studies indicate that the CHZ experiences more than **six heatwave days per year** during these four months.
- Many places in the northwest and cities along the southeastern coast report **eight heatwave days per season.**
- However, the regions in the **extreme north, northeast and southwestern India are less prone to heatwaves.**

3. Answer: **C**

Sol:

- **Statement 1 is correct:** Gross Environment Product (GEP) is a measure that allows **monitoring of ecological growth parallel to economic growth** which is measured using the gross domestic product or GDP.

GEP and GDP

- GDP is the sum of whatever we produce every year within a boundary of a state or a nation.

- Gross Ecosystem Product is the **total value of products and services that are produced within a functional living ecosystem** and are essential for human welfare and sustainable development.
    - For example, a tree is a source of oxygen, timber, shade, fodder, shelter, it regulates water, fixes nitrogen, controls flood, improves soil quality, and so on. All these are invisible services offered by the living ecosystems throughout the year and can be captured using specific indicators.

Why is GDP not sufficient?

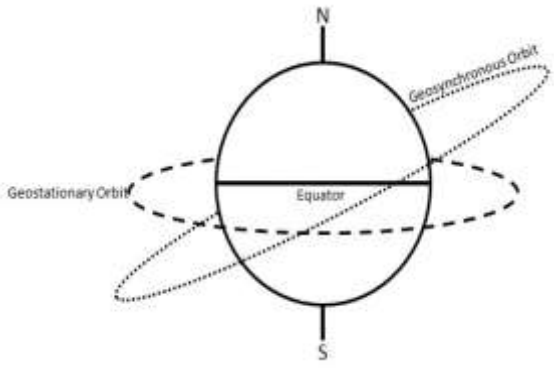
- **GDP is not adjusted for pollution costs**. If two economies have the same GDP per capita, but one has polluted air and water, it will have a disparate impact on people's well-being. Yet GDP won't capture it.

How will GEP help?

- It will update us about the growth of forest, soil and water, and quality of air, in any given year, parallel to GDP.
- **Statement 2 is correct:** Therefore, it will **help understand if development is happening at the cost of ecology.**
- This will help maintain a **balance between economy and ecology.** Currently, we are unaware how long natural resources will support us.

4. Answer: **B**

Sol:



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.
- **Statement 1 is incorrect:** 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

- 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.
- **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.**
- **Statement 2 is correct:** Geostationary satellites have **zero inclination with respect to the equator.**

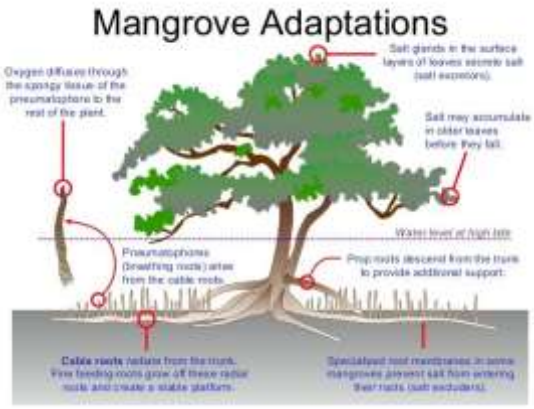
5. Answer: **C**

Sol:

- Mangrove swamps are coastal wetlands found in **tropical and subtropical regions**.
- Mangroves belong primarily to the families **Rhizophoraceae, Acanthaceae, Lythraceae, Combretaceae, and Arecaceae.**
- They are characterized by **halophytic** (salt loving) trees, shrubs and other plants growing in **brackish to saline tidal waters.**
- These wetlands are often found in **estuaries**, where fresh water meets salt water.

Adaptation mechanisms

- Many mangroves characteristically have **prop roots** descending from the trunk and branches, providing a stable support system in the submerged conditions.
- Many mangrove species survive by **filtering** out as much as 90 percent of the salt found in seawater as it enters their roots. Some species excrete salt through glands in their leaves.
- Some mangroves have pencil-like roots called **pneumatophores** that grow out from the water surface. Pneumatophores facilitate the aeration necessary for root respiration in mangroves.
- Mangroves, like desert plants, store fresh water in thick **succulent leaves**. A **waxy coating** on the leaves seals in water and minimises evaporation.
- **Mangroves are viviparous,** their seeds germinate while still attached to the parent tree. Once germinated, the seedling grows into a propagule. The mature propagule then drops into the water and gets transported to a different spot, eventually taking root in a solid ground.



Significance of mangroves

- A **wide diversity of plants and animals** are found in mangrove swamps. Since these estuarine swamps are constantly replenished with nutrients transported by fresh water runoff from the land and flushed by the ebb and flow of the tides, they support a bursting population of bacteria and other decomposers and filter feeders.
- Because mangroves create dense foliage and close proximity of trees, they **protect shorelines from damaging winds and waves.** A series of studies in the early 2000s discovered that mangroves with an average height of 6-10 metres could shorten a cyclone's waves by 60%.
- Their protective role has been widely recognized especially after the devastating **Tsunami of 2004.**
- Mangrove forests **stabilize the coastline,** and help **prevent erosion** by stabilising sediments with their tangled root systems.
- Mangroves also have a **big impact on climate.** Mangroves are powerhouses when it comes to carbon storage. Studies indicate that mangroves can **sequester greater amounts of carbon** than other trees in the peat soil beneath. They store this carbon for thousands of years.
- The intricate root system of mangroves also makes these forests attractive to fish and other organisms seeking food and shelter from predators.
- Many people living in and around mangroves **depend on them for their livelihood.** The trees are a source of wood for construction and fuel. The ecosystem provides local fishermen with a rich supply of fish, crabs and shellfish. The ecosystem also supports tourism.