



Sleepy Classes
Awakening Toppers

Pre-Mix

(Environment)

Compilation

January to April 2023

Pre-Mix - 5 MCQs for Prelims

Subject - Environment

Date - 05th January 2023

1. Consider the following statements regarding Millets

1. They have a high-water footprint.
2. They have a low glycaemic index.
3. They are gluten-free.

Which of the above statements is/are correct?

- A. 1 and 2 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. All of the above.

2. Consider the following statements with respect to Adaptations:

1. A special photosynthetic pathway (CAM) is a feature of many desert plants.
2. Mammals from colder climates generally have shorter ears and limbs to minimise heat loss.
3. At high altitudes, the human body compensates low oxygen availability by increasing red blood cell production, increasing haemoglobin's binding capacity and breathing rate.

Which of the above is correct?

- A. 1 and 3 only
- B. 2 and 3 only
- C. 1 and 2 only
- D. All of the above.

3. Consider the following statements:

1. Unlike shallow-water coral reefs, which are limited to warm tropical waters, deep-sea corals are found throughout the world's oceans.

2. The diversity of corals that build reefs in shallow waters is low as compared to deep-sea stony corals.
3. Like shallow coral deep sea coral also rely on photosynthetic algae.

Select the correct answer code:

- A. 1 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. All of the above.

4. If you want to see gharials in their natural habitat, which one of the following is the best place to visit?

- A. Bhitarkanika Mangroves
- B. Chambal River
- C. Pulicat Lake
- D. Deepor Beel

5. SAIME Initiative is related to which of the following?

- A. Shrimp cultivation
- B. Mangrove Restoration
- C. Both A and B
- D. None of the above.

Answers with Explanations

Click [here](#) to watch the following topics on YouTube.

1. Consider the following statements regarding Millets

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2. They have a low glycaemic index.
3. They are gluten-free.

Which of the above statements is/are correct?

- A. 1 and 2 only
- B. 2 and 3 only**
- C. 1 and 3 only
- D. All of the above.

Answer : B

Explanation

- The United Nations has declared 2023 as the International Year of Millets.
- It was at the initiative of India, which also accounts for a fifth of the world's millet production.
- Millet is a collective term referring to a number of small-seeded annual grasses that are cultivated as grain crops, primarily on marginal lands in dry areas in temperate, subtropical and tropical regions.
- Millets score over rice and wheat in terms of minerals, vitamins, and dietary fibre content, as well as amino acid profile.
- Millets can help tackle lifestyle problems and health challenges such as obesity and diabetes as they are gluten-free and have a low glycemic index.
- Millets are also rich in calcium and magnesium.
- Millets are Photo-insensitive (do not require a specific photoperiod for flowering) & resilient to climate change.
- Millets can grow on poor soils with little or no external inputs.
- Millets are less water consuming and are capable of growing under drought conditions, under non-irrigated conditions even in very low rainfall regimes.
- Millets have low carbon and water footprint (rice plants need at least 3 times more water to grow in comparison to millets).

2. Consider the following statements with respect to Adaptations:

1. A special photosynthetic pathway (CAM) is a feature of many desert plants.
2. Mammals from colder climates generally have shorter ears and limbs to minimise heat loss.
3. At high altitudes, the human body compensates low oxygen availability by increasing red blood cell production, increasing haemoglobin's binding capacity and breathing rate.

Which of the above is correct?

- A. 1 and 3 only
- B. 2 and 3 only
- C. **1 and 2 only**
- D. All of the above.

Answer : C

Explanation

- Many desert plants have a thick cuticle on their leaf surfaces and have their stomata arranged in deep pits to minimise water loss through transpiration.
- They also have a special photosynthetic pathway (CAM) that enables their stomata to remain closed during day time.
- Some desert plants like Opuntia, have no leaves – they are reduced to spines– and the photosynthetic function is taken over by the flattened stems.
- Mammals from colder climates generally have shorter ears and limbs to minimize heat loss. (This is called the Allen's Rule.)
- In the polar seas aquatic mammals like seals have a thick layer of fat (blubber) below their skin that acts as an insulator and reduces loss of body heat.
- The body compensates low oxygen availability by increasing red blood cell

production, decreasing the binding capacity of hemoglobin and by increasing breathing rate.

3. Consider the following statements:

1. Unlike shallow-water coral reefs, which are limited to warm tropical waters, deep-sea corals are found throughout the world's oceans.
2. The diversity of corals that build reefs in shallow waters is low as compared to deep-sea stony corals.
3. Like shallow coral deep sea coral also rely on photosynthetic algae.

Select the correct answer code:

- A. 1 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. All of the above.

Answer : A

Explanation

- Deep-sea corals are defined as corals that live at depths greater than 50 meters, but most species live in depths several hundred meters deep, in cold, dark, rocky habitats, often far from shore.
- Unlike shallow-water coral reefs, which are limited to warm tropical waters, deep-sea corals are found throughout the world's oceans, from tropical to polar regions.
- While the diversity of corals that build reefs in shallow waters is very high, and includes hundreds of species, there are only six species of deep-sea stony corals that create reefs.
- Shallow-water corals rely on photosynthetic algae that live within the corals and provide their hosts with nutrition.

- However, algae cannot survive where there is no light, so deep-sea corals need to rely on alternate sources of food to obtain their nutrition, either by feeding on organic material falling from the surface or by feeding on small plankton.
- Because deep-sea corals lack algae, they are bright white in colouration, rather than the brown and green colours that we see in shallow reefs.

4. If you want to see gharials in their natural habitat, which one of the following is the best place to visit?

- A. Bhitarkanika Mangroves
- B. Chambal River
- C. Pulicat Lake
- D. Deepor Beel

Answer : B

Explanation



- Population of Gharials are a good indicator of clean river water.
- Mainly found in Chambal river and also in Ghaghra and Gandak river, Girwa river (Katarniaghat Wildlife Sanctuary in Uttar Pradesh), the Ramganga river in Jim Corbett National Park and the Sone river(Bihar).
- The National Chambal Sanctuary is located along river Chambal on the tri-junction of Rajasthan, Madhya Pradesh and Uttar Pradesh.

- It is known for *critically endangered gharials, the red-crowned roof turtle, and the endangered Ganges river dolphin.*
- Critically endangered.
- Schedule I of the Wild Life (Protection) Act, 1972.
- Appendix I of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

5. SAIME Initiative is related to which of the following?

- A. Shrimp cultivation
- B. Mangrove Restoration
- C. Both A and B**
- D. None of the above.

Answer : C

Explanation



- A new initiative of sustainable shrimp cultivation provides hope for mangrove restoration in Sundarbans.
- For several years, environmentalists and experts have expressed concerns over unsustainable aquaculture, particularly shrimp collection, after cleaning large tracts of mangrove forests in Sunderbans
- Under Sustainable Aquaculture In Mangrove Ecosystem (SAIME) initiative, farmers have taken up the cultivation of shrimp at 30 hectares in West Bengal.

- Additionally, they are restoring mangroves.
- It was started in 2019 by the Global Nature Fund (GNF) & Naturland of Germany.
- Funded by the Federal Ministry for Economic Cooperation and Development (BMZ), Germany.
- There are 2 local cooperation partners - Bangladesh Environment and Development Society (BEDS) and the Nature Environment & Wildlife Society of India (NEWS).
- It is based on the concept of a so-called multi-stakeholder partnership (MSP) in and between India, Bangladesh, and Germany.
- The aim is to promote the sustainable design of aquaculture systems by focusing on protecting mangroves and improving local living conditions.
- A large proportion of the project is implemented in the Sundarbans.

Pre-Mix - 5 MCQs for Prelims**Subject - Environment****Date - 12th January 2023****1. Consider the following statements regarding Deepor Beel:**

1. It is the erstwhile water channel of River Brahmaputra.
2. It is an Important Bird Area by Birdlife International.
3. It is the only Ramsar site in Assam.

Which of the above statements is/are correct?

- A. 1 and 2 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. All of the above.

2. Consider the following statements with respect to CITES COP 19:

1. It was held in Panama.
2. India's Shisham is included in Appendix I of the convention.
3. Sea cucumbers has been included in Appendix II of the Convention.

Which of the above is correct?

- A. 1 and 3 only
- B. 2 and 3 only
- C. 1 and 2 only
- D. All of the above.

3. Consider the following statements regarding Kelp forests

1. They are found in tropical waters only.
2. They are rich in potassium, iron, calcium, fibre and iodine.

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. World Heritage Glaciers Report has been released by

- A. IPCC
- B. WMO
- C. UNFCCC
- D. None of the above.

5. Which of the following acts have been kept out of the jurisdiction of the National Green Tribunal?

1. Wildlife Protection Act, 1972.
2. Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (FRA).
3. Forest Conservation Act, 1980.

Select the correct code:

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

Answers with Explanations

Click [here](#) to watch the following topics on YouTube.

1. Consider the following statements regarding Deepor Beel:

1. It is the erstwhile water channel of River Brahmaputra.
2. It is an Important Bird Area by Birdlife International.
3. It is the only Ramsar site in Assam.

Which of the above statements is/are correct?

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

D. All of the above.

Answer: D

Explanation:

- Dipor Bil, also spelt Deepor Beel is located to the south-west of Guwahati city, Assam, India.
- It is a permanent freshwater lake, in a former channel of the Brahmaputra River, to the south of the main river.
- It is also called a wetland under the Ramsar Convention.
- It is Assam's only Ramsar site besides being an Important Bird Area by Birdlife International.
- Considered one of the largest beels in the Brahmaputra valley of Lower Assam, it is categorised as representative of the wetland type under the Burma monsoon forest biogeographic region.

2. Consider the following statements with respect to CITES COP 19:

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Which of the above is correct?

- A. 1 and 3 only
- B. 2 and 3 only
- C. 1 and 2 only
- D. All of the above.

Answer: A

Explanation:

- Recently, CITES COP 19 was held in Panama City.
- Every two to three years, the Conference of the Parties meets to

review the implementation of the Convention.

- India's Shisham is included in Appendix II of the convention, thereby requiring to follow CITES regulations for the trade of the species.
- However, a relief was provided by easing the CITES rules for export of *Dalbergia sissoo* based products. This is expected to boost Indian handicraft exports.
- The Conference has accepted a proposal to include sea cucumbers Appendix II of the Convention.

3. Consider the following statements regarding Kelp forests:

1. They are found in tropical waters only.
2. They are rich in potassium, iron, calcium, fibre and iodine.

Which of the above statements is/are correct?

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

Answer: B

Explanation:

- Kelps are large brown algae seaweeds.
- Kelp forests occur worldwide throughout temperate and polar coastal oceans.
- Although kelp forests are unknown in tropical surface waters, a few species have been known to occur exclusively in tropical deep waters.
- The longest kelp recorded in the Arctic in Canada was 15 metres, and the deepest was found at 60 metre depth (Disko Bay, Greenland). Significance
- Kelps function underwater in the same way trees do on land.

- They create habitat and modify the physical environment by shading light and softening waves.
- Kelp is a coveted food source in many countries, full of potassium, iron, calcium, fibre and iodine.

4. World Heritage Glaciers Report has been released by

- A. IPCC
- B. WMO
- C. UNFCCC
- D. None of the above.

Answer: D

Explanation:

- The World Heritage Glaciers Report is jointly released by UNESCO and IUCN.
- Glaciers have been identified in 50 sites on the UNESCO World Heritage List.
- Around 18,600 glaciers have been identified in these sites, representing almost 10% of the Earth's glacier area.
- A third of the glaciers on the UNESCO World Heritage list is under threat, regardless of efforts to limit temperature increases, a study conducted by the UN body has found.
- However, the study said, it was still possible to save the other two-thirds, if the rise in global temperatures did not exceed 1.5 degrees Celsius compared to the pre-industrial era.

5. Which of the following acts have been kept out of the jurisdiction of the National Green Tribunal?

1. Wildlife Protection Act, 1972.
2. Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (FRA).
3. Forest Conservation Act, 1980.

Select the correct code:

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

Answer: C

Explanation:

2 acts have been kept out of the jurisdiction of NGT

- Wildlife Protection Act, 1972.
- Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (FRA).

NGT deals with civil cases under the 7 acts related to the environment

- Water (Prevention And Control Of Pollution) Act, 1974.
- Water (Prevention And Control Of Pollution) Cess Act, 1974.
- Air (Prevention And Control Of Pollution) Act, 1977.
- Forest Conservation Act, 1980.
- Environmental Protection Act, 1986.
- Public Liability Insurance Act 1991.
- Biological Diversity Act, 2002.

Pre-Mix – 5 MCQs for Prelims

Subject – Environment

Date – 19th January 2023

1. Consider the following statements regarding Neelakurinji

1. Ministry of Environment, Forest and Climate Change (MoEF) has listed Neelakurinji (*Strobilanthes kunthiana*) under Schedule III of the Wildlife (Protection) Act, 1972.
2. Flower Bloom takes place every year.
3. Nilgiris derive their name from the above plant.

Which of the above statements is/are correct?

- A. 1 and 2 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. All of the above.

2. Which one of the following protected areas is well known for the conservation of a subspecies of the Indian swamp deer (Barasingha) that thrives well on hard ground and is exclusively graminivorous?

- A. Kanha National Park
- B. Manas National Park
- C. Mudumalai Wildlife Sanctuary
- D. Tal Chhapar Wildlife Sanctuary

3. Indian Star Tortoise is protected under

1. Schedule I of WPA 1972
2. Vulnerable under IUCN red list
3. Appendix I of CITES

Which of the above is/are correct?

- A. 1 and 2 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. All of the above.

4. Consider the following statements regarding the impacts of Mulch:

1. It can suffocate plants by overheating the soil and starving them of light and water.
2. It can create a hiding place for harmful insects.
3. It increases the penetration of sunlight to kill weed seeds

Select the correct answer code:

- A. 1 and 2 only
- B. 2 only
- C. 1 and 3 only
- D. All of the above.

5. Recently, researchers have found the White Tufted Royal Butterfly, a rare butterfly species in Kannur, Kerala.

It is protected under which schedule of WPA 1972?

- A. Schedule I
- B. Schedule II
- C. Schedule III
- D. Not yet protected

Answers with Explanations

Click [here](#) to watch the following topics on YouTube.

1. Consider the following statements regarding Neelakurinji

1. Ministry of Environment, Forest and Climate Change (MoEF) has listed Neelakurinji (*Strobilanthes kunthiana*) under Schedule III of the Wildlife (Protection) Act, 1972.
2. Flower Bloom takes place every year.
3. Nilgiris derive their name from the above plant.

Which of the above statements is/are correct?

- A. 1 and 2 only

- B. 2 and 3 only
- C. 1 and 3 only
- D. All of the above.



Answer: C

Explanation:

- The Ministry of Environment, Forest and Climate Change (MoEF) has listed Neelakurinji (*Strobilanthes kunthiana*) under Schedule III of the Wildlife (Protection) Act, 1972, including it on the list of protected plants.
- In Neelakurinji, 'Neela' means blue, and 'Kurinji' refers to the flowers.
- The flowers give the 'Nilgiri Mountain Range' its name.
- All neelakurinji species are endemic to the Shola Forest of Western Ghats.
- According to statistics, there are more than 40 different varieties of neelakurinji in India.
- Flower Bloom takes place once in 12 years as the pollination of flowers needs a longer period.

2. Which one of the following protected areas is well known for the conservation of a subspecies of the Indian swamp deer (Barasingha) that thrives well on hard ground and is exclusively graminivorous?

- A. Kanha National Park
- B. Manas National Park
- C. Mudumalai Wildlife Sanctuary
- D. Tal Chhapar Wildlife Sanctuary

Answer: A

Explanation:

- Three subspecies are currently recognized –
 - Western swamp deer - Indogangetic plains.
 - Southern swamp deer - Kanha National Park.
- Southern Swamp Deer - The State animal of Madhya Pradesh - Hard Ground Barasingha is found exclusively in Kanha Tiger Reserve.
- It is the first tiger reserve in India to officially introduce a mascot, "Bhoorsingh the Barasingha".
- It was reintroduced into Satpura Tiger Reserve.



- Eastern swamp deer - Kaziranga and Dudhwa National Parks).
- It is the state animal of the Indian states of Madhya Pradesh and Uttar Pradesh.
- Vulnerable
- Schedule I of the Wild Life (Protection) Act, 1972.
- Appendix I of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

3. Indian Star Tortoise is protected under

1. Schedule I of WPA 1972
2. Vulnerable under IUCN red list
3. Appendix I of CITES

Which of the above is/are correct?

- A. 1 and 2 only
- B. 2 and 3 only**
- C. 1 and 3 only
- D. All of the above.



Answer: B

Explanation:

- Indian star tortoise is found across the Indian sub-continent, more specifically, in the Central and Southern parts of India, in West Pakistan and in Sri Lanka.
- A recent study on the Indian star tortoise (*Geochelone elegans*) distributed across South Asia has revealed that the genetic diversity of the species as well as habitat has suffered major losses because of rampant illegal trade.
- According to the Wildlife Crime Control Bureau, 90% of the trade of Star Tortoise occurs as part of the International pet market.

- Wildlife Protection Act 1972: Schedule IV
- Convention on International Trade in Species (CITES): Appendix I
- IUCN Status: Vulnerable

4. Consider the following statements regarding the impacts of Mulch:

1. It can suffocate plants by overheating the soil and starving them of light and water.
2. It can create a hiding place for harmful insects.
3. It increases the penetration of sunlight to kill weed seeds

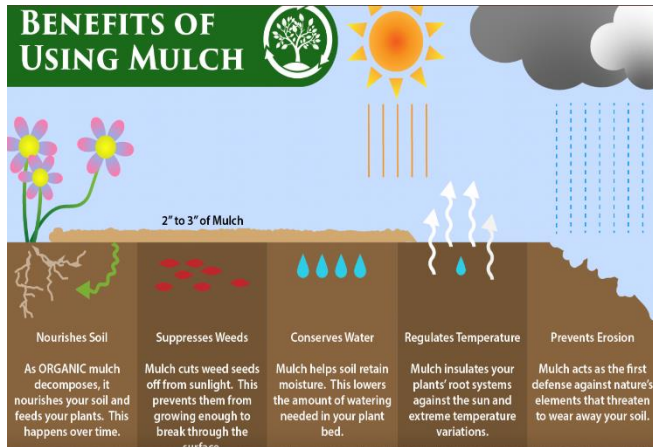
Select the correct answer code:

- A. 1 and 2 only**
- B. 2 only
- C. 1 and 3 only
- D. All of the above.

Answer: A

Explanation:

- Mulch is the common word in most of agriculture-related farming or cultivation.
- Mulch is basically a protective layer spread on top of the soil to control the effects of local climatic conditions.
- Mulching is referred to as a mixture of wet straw, leaves, and loose earth evenly spread on the ground to protect the newly planted trees, shrubs, and their roots.
- The main disadvantage of mulching is that it can create a hiding place for harmful insects, and when applied too thickly can suffocate your plants by overheating the soil and starving them of light and water.



5. Recently, researchers have found the White Tufted Royal Butterfly, a rare butterfly species in Kannur, Kerala.

It is protected under which schedule of WPA 1972?

- A. Schedule I
- B. Schedule II
- C. Schedule III
- D. Not yet protected

Answer: B

Explanation:



- A team of butterfly observers and researchers have found White Tufted Royal Butterfly, a rare butterfly species at Kalliyad in Kannur.
- According to researcher and butterfly observer V.C. Balakrishnan, the butterfly is protected under Schedule 2 of the Wildlife Protection Act.
- The species had been spotted in Agasthyakoodam in 2017 and the Shendurney Wildlife Sanctuary in 2018.

Pre-Mix – 5 MCQs for Prelims

Subject – Environment

Date – 25th January 2023

1. Consider the following statements regarding Accelerating to Zero (A2Z) Coalition

1. It is about promoting zero-emission transportation
2. It builds off the momentous foundation of the “Zero Emission Vehicles Declaration” (ZEV Declaration) generated at COP26.

Which of the above statements is/are incorrect?

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

2. Consider the following statements with respect to Coal as a source of energy in India

1. India is the largest consumer of coal in the world.
2. It accounts for 55% of the country's energy needs and over 75% of its electricity needs.

Which of the above is correct?

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

3. Among the following which is the best description of a Carbon negative company?

- A. It removes as much carbon dioxide from the atmosphere as they contribute.
- B. It removes more CO₂ from the atmosphere than it contributes.
- C. It releases more CO₂ into the atmosphere than it removes.

- D. It balances the whole amount of greenhouse gas released and the amount removed from the atmosphere.

4. Koronivia's Joint Work on Agriculture is related to which of the following?

- A. To promote the use of millets.
- B. To develop GM crops with increased crop yields, reduced need for pesticides, enhanced nutrient composition and food quality.
- C. To develop and implement new strategies for mitigation and adaptation of the agriculture sector
- D. None of the above.

5. The Genetic Engineering Appraisal Committee is constituted under the

- A. Food Safety and Standards Act, 2006
- B. Geographical Indications of Goods (Registration and Protection) Act, 1999
- C. Environment Protection Act, 1986
- D. Wildlife (Protection) Act, 1972

Answers with Explanations

Click [here](#) to watch the following topics on YouTube.

1. Consider the following statements regarding Accelerating to Zero (A2Z) Coalition

1. It is about promoting zero-emission transportation
2. It builds off the momentous foundation of the “Zero Emission Vehicles Declaration” (ZEV Declaration) generated at COP26.

Which of the above statements is/are incorrect?

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

Answer : D

Explanation

- Accelerating to Zero (A2Z) Coalition is the next step in securing more ambitious commitments to a zero-emission vehicle transition aligned with the Paris Agreement.
- Announced on Solutions Day at COP27, more than 200 stakeholders are signalling their commitment to a rapid transition to zero-emission transportation.
- The A2Z Coalition connects the world's leading organizations on zero-emission transportation, creating a platform to support in understanding, developing, and implementing ambitious zero-emission transportation policies and plans, and showcase leadership.
- With transportation accounting for approximately 20% of global greenhouse gas emissions, shifting the sector is crucial to meet the goals set by the Paris Agreement.
- The A2Z Coalition builds off the momentous foundation of the "Zero Emission Vehicles Declaration" (ZEV Declaration) generated at COP26 and hosted by the UK COP Presidency in collaboration with the High Level UN Climate Champions and the Climate Group.

2. Consider the following statements with respect to Coal as a source of energy in India

1. India is the largest consumer of coal in the world.
2. It accounts for 55% of the country's energy needs and over 75% of its electricity needs.

Which of the above is correct?

- A. 1 only
- B. 2 only**

C. Both 1 and 2

D. Neither 1 nor 2

Answer: B

Explanation:

- India is the second largest consumer of coal and the fuel has so far played a crucial role in India's energy sector, accounting for 55% of the country's energy needs and over 75% of its electricity needs.
- Coal is also a vital ingredient and energy source in the production of many important products such as steel, cement, fertilizer and paper.

3. Among the following which is the best description of a Carbon negative company?

- A. It removes as much carbon dioxide from the atmosphere as they contribute.
- B. It removes more CO₂ from the atmosphere than it contributes.**
- C. It releases more CO₂ into the atmosphere than it removes.
- D. It balances the whole amount of greenhouse gas released and the amount removed from the atmosphere.

Answer: B

Explanation:

- Carbon neutral means that an entity removes as much carbon dioxide from the atmosphere as they contribute.
- Carbon-negative means that an entity removes more CO₂ from the atmosphere than it contributes.
- Carbon negative means the same thing as "climate positive."
- Net-Zero carbon emissions mean that an activity releases net-zero carbon emissions into the atmosphere.
- Net-Zero emissions balance the whole amount of greenhouse gas (GHG) released

and the amount removed from the atmosphere.

4. Koronivia's Joint Work on Agriculture is related to which of the following?

- A. To promote the use of millets.
- B. To develop GM crops with increased crop yields, reduced need for pesticides, enhanced nutrient composition and food quality.
- C. To develop and implement new strategies for mitigation and adaptation of the agriculture sector**
- D. None of the above.

Answer: C

Explanation:

- The Koronivia Joint Work on Agriculture (KJWA) is a landmark decision under the United Nations Framework Convention on Climate Change (UNFCCC) that recognizes the unique potential of agriculture in tackling climate change.
- The Koronivia decision addresses six interrelated topics on *soils, nutrient use, water, livestock, methods for assessing adaptation, and the socio-economic and food security* dimensions of climate change across the agricultural sectors.
- The decision resonates with FAO's core mandate to eliminate hunger, food insecurity and malnutrition, reduce rural poverty, and make agriculture, forestry and fisheries more productive and sustainable.
- Adopted in the 2017 United Nations Climate Change Conference (COP23) held at Bonn, Germany.

5. The Genetic Engineering Appraisal Committee is constituted under the

- A. Food Safety and Standards Act, 2006
- B. Geographical Indications of Goods (Registration and Protection) Act, 1999
- C. Environment Protection Act, 1986**

D. Wildlife (Protection) Act, 1972

Answer: C

Explanation:

- The Genetic Engineering Appraisal Committee (GEAC) is the apex body constituted in the Ministry of Environment and Forests under 'Rules for Manufacture, Use, Import, Export and Storage of Hazardous Microorganisms/Genetically Engineered Organisms or Cells 1989', under the Environment Protection Act, 1986.
- It was formed as the Genetic Engineering Approval Committee and was renamed to its current name in 2010.
- It functions under the Ministry of Environment, Forests & Climate Change.
- The body regulates the use, manufacture, storage, import and export of hazardous microorganisms or genetically-engineered organisms and cells in India.

Pre-Mix – 5 MCQs for Prelims

Subject – Environment

Date – 30th January 2023

Questions from **Crash Course**

1. Which of the following statements is/are correct?

1. Ecophene in long term leads to Ecotype.
2. Two ecospecies can produce viable off-springs while the ecophenes and ecotypes cannot.

- A. 1 Only
- B. 2 Only
- C. Both are Correct
- D. None is Correct

2. The destructive effect that the bread mould *Penicillium* has upon certain bacteria, is an example of:

- A. Mutualism
- B. Commensalism
- C. Amensalism
- D. Parasitism

Questions from **Test Series**

Foundation Test – 5 (Environment)

3. It is the species whose presence or absence or abundance reflects the environmental condition.

They serve as early warning mechanism or signals because they are sensitive to environmental conditions.

This is the best description of which species.

- A. Keystone Species
- B. Flagship Species
- C. Foundation Species
- D. Sentinel Species

4. Consider the following pairs:

Which of the pairs given above is/are correctly matched?

Biotic Interactions	Example
Predation	Varroa mite feeding on honeybees
Competition	Plants in evergreen forest
Parasitism	Cattle egret and grazing cattle

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

UPSC Previous Year Question **2016**

5. With reference to an initiative called 'The Economics of Ecosystems and Biodiversity (TEEB)', which of the following statements is/are correct?

1. It is an initiative hosted by UNEP, IMF and World Economic Forum.
2. It is a global initiative that focuses on drawing attention to the economic benefits of biodiversity.
3. It presents an approach that can help decisionmakers recognize, demonstrate and capture the value of ecosystems and biodiversity.

Select the correct answer using the code given below:

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

Answers with Explanations

Click [here](#) to watch the following topics on YouTube.

Questions from **Crash Course**

1. Which of the following statements is/are correct?

1. Ecophene in long term leads to Ecotype.
 2. Two ecospecies can produce viable off-springs while the ecophenes and ecotypes cannot.
- A. 1 Only
B. 2 Only
C. Both are Correct
D. None is Correct

Answer: A

Explanation

Ecophene



- These are otherwise called Ecads or morphologically-changed forms.
- When a species is transported to a new environment, its first response will be to develop abilities to survive there.
- These differences among ecophenes are not permanent.
- They are just temporary variations to survive the new conditions.
- This reversibility is because there has been no change in the genetics of the two separate ecophenes.

- Therefore, ecophenes from different habitats, when brought together, become similar.

Ecotype



- However, if two of these ecophenes were to remain in their new habitat for too long, these morphological (physical) changes will *start becoming permanent*.
- This permanence in the adaptations arises due to changes in genes.
- Two ecotypes of an organism will show *minor variations* in their genetic stock.

Ecospecies

- Now, if two ecotypes have been separated from each other for a very long time.
- The adaptations become a permanent part of the genes.
- They are still the same species, but their difference physically and genetically are very distinct.
- In fact, two ecospecies cannot produce viable off-springs (which the ecophenes and ecotypes can).
- These ecospecies, left alone for many, many generations, then develop sufficient changes in them to become a separate species.

2. The destructive effect that the bread mould *Penicillium* has upon certain bacteria, is an example of:

- A. Mutualism
- B. Commensalism
- C. Amensalism
- D. Parasitism

Answer: C

Explanation

Mutualism

- This interaction confers benefits on both the interacting species.
- Lichens represent an intimate mutualistic relationship between a fungus and photosynthesising algae or cyanobacteria.
- Similarly, the mycorrhizae are associations between fungi and the roots of higher plants.
- The fungi help the plant in the absorption of essential nutrients from the soil while the plant in turn provides the fungi with energy-yielding carbohydrates.



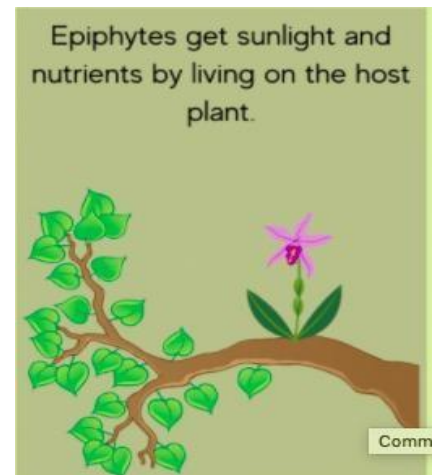
- The most spectacular and evolutionarily fascinating examples of mutualism are found in plant animal relationships.
- Plants need the help of animals for pollinating their flower.

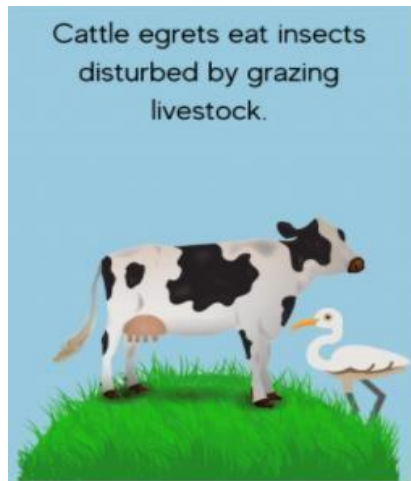
- Plants offer rewards or fees in the form of pollen and nectar for pollinators and juicy and nutritious fruits for seed dispersers and dispersing their seeds.



Commensalism

- This is the interaction in which one species benefits and the other is neither harmed nor benefited.
- An orchid growing as an epiphyte on a mango branch,
- Barnacles growing on the back of a whale,
- The cattle egret and grazing cattle,
- Interaction between sea anemone that has stinging tentacles and the clown fish, etc





Amensalism



Penicillium sp. cultured with a bacteria (*Staphylococcus aureus*)

- An association between organisms of two different species in which one is inhibited or destroyed and the other is unaffected.
- An example is the destructive effect that the bread mold *Penicillium* has upon certain bacteria; the secretion, known as penicillin, has become a potent medicine in combating bacterial infections.

- Another example is the black walnut (*Juglans nigra*), which secretes juglone, a substance that destroys many herbaceous plants within its root zone.

Parasitism

- Considering that the parasitic mode of life ensures free lodging and meals, it is not surprising that parasitism has evolved in so many taxonomic groups from plants to higher vertebrates.
- Many parasites have evolved to be host-specific (they can parasitise only a single species of host) in such a way that both host and the parasite tend to co-evolve.
- Parasites have evolved special adaptations such as the loss of unnecessary sense organs, presence of adhesive organs or suckers to cling on to the host, loss of digestive system and high reproductive capacity.
- The life cycles are complex, involving one or two intermediate hosts or vectors to facilitate parasitisation of its primary host.

Questions from **Test Series**

Foundation Test - 5 (Environment)

3. It is the species whose presence or absence or abundance reflects the environmental condition.

They serve as early warning mechanism or signals because they are sensitive to environmental conditions.

This is the best description of which species.

- Keystone Species
- Flagship Species
- Foundation Species
- Sentinel Species

Answer: D

Explanation

Indicator/Sentinel Species

- It is the one whose presence or absence or abundance reflects the environmental condition.
- They serve as early warning mechanism or signals because they are sensitive to environmental conditions.
- Also Known as Sentinel Species.
- Eg. Frogs, lichens, salmon

Keystone species

- Keystone species is a species whose addition to or loss from an ecosystem leads to major changes in the occurrence of at least one other species.
- Certain species in an ecosystem is considered more important in determining the presence of many other species in that ecosystem.
- All top predators (Tiger, Lion, Crocodile, Elephant) are considered as keystone species because they regulate all other animal population indirectly.
- Hence top predators are given much consideration in conservation.
- If keystone species is lost, it will result in the degradation of the whole ecosystem.

Foundation species

- Foundation species is a dominant primary producer in an ecosystem both in terms of abundance and influence.
- Example: kelp in kelp forests and corals in coral reefs.

Flagship species

- A flagship species is a species chosen to represent an environmental cause, such as an ecosystem in need of conservation.

- These species are chosen for their vulnerability, attractiveness or distinctiveness in order to engender support and acknowledgement from the public at large.
- Example: Indian tiger, African elephant, giant panda of China, the leatherback sea turtle, etc.

4. Consider the following pairs:

Which of the pairs given above is/are correctly matched?

Biotic Interactions	Example
Predation	Varroa mite feeding on honeybees
Competition	Plants in evergreen forest
Parasitism	Cattle egret and grazing cattle

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

Answer: C

Explanation

- In nature, animals, plants and microbes do not and cannot live in isolation but interact in various ways to form a biological community. Even in minimal communities, many interactive linkages exist, although all may not be readily apparent. Interspecific interactions arise from the interaction of populations of two different species.
- They could be beneficial, detrimental or neutral (neither harm nor benefit) to one of the species or both.

- Predation, parasitism and commensalism share a common characteristic- the interacting species live closely together.
- Predation- One species benefits and the other is harmed. It is nature's way of transferring to higher trophic levels the energy fixed by plants. Example Pitcher plant consuming insect. Pair 1 is incorrectly matched.
- The Varroa mite, or Varroa destructor, is a parasitic insect that attacks and feeds on honeybees. Reddish-brown in colour, the tiny pests are known to kill entire colonies of honeybees.
- They often travel from bee to bee and also via beekeeping equipment, such as combs that have been extracted. The spread of the mite is largely blamed for a sharp decline in the number of honeybee colonies worldwide. It has plundered bee colonies across the globe
- Competition- It is generally believed that competition occurs when closely related species compete for the same resources that are limiting. Example: Plants in the evergreen forests are fighting for sunlight, which negatively affects their growth. It is an example of competitive interaction where plants are competing for the same source i.e. sunlight. Pair 2 is correctly matched.
- Commensalism- One species benefits and the other is unaffected. The egrets always forage close to where the cattle are grazing. Cattle egrets eat the flies and bugs that tend to bother the cattle. The movement of livestock also dislodges various insects on which cattle egrets feed on. So, this is called

commensalism in which the egrets benefit and this has no effect on Cattle. Pair 3 is incorrectly matched.

UPSC Previous Year Question 2016

5. With reference to an initiative called 'The Economics of Ecosystems and Biodiversity (TEEB)', which of the following statements is/are correct?

1. It is an initiative hosted by UNEP, IMF and World Economic Forum.
2. It is a global initiative that focuses on drawing attention to the economic benefits of biodiversity.
3. It presents an approach that can help decisionmakers recognize, demonstrate and capture the value of ecosystems and biodiversity.

Select the correct answer using the code given below:

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

Answer: C

Explanation

- The Economics of Ecosystems and Biodiversity (TEEB) is a global initiative focused on "making nature's values visible".
- Its principal objective is to mainstream the values of biodiversity and ecosystem services into decision-making at all levels.
- It aims to achieve this goal by following a structured approach to valuation that helps decision-makers recognize the wide range of benefits provided by ecosystems and biodiversity, demonstrate their values in economic terms and, where appropriate, capture those values in decision-making.

Pre-Mix - 5 MCQs for Prelims

Subject - Environment

Date - 13th February 2023

Questions from Crash Course

1. Which of the following statements is/are correct regarding EV30@30?

1. It is an initiative envisaged by India.
2. The idea is to speed up the deployment of electric vehicles and target at least 30 per cent of new electric vehicle sales by 2030.

- A. 1 Only
B. 2 Only
C. Both are Correct
D. None is Correct

2. Which of the following statements is/are incorrect regarding FAME II?

1. It provides incentives for passenger cars used for personal use.
2. It is being implemented for a period of 5 years which was started from April 01, 2019, with a total budget of Rs. 10,000 crores.

- A. 1 Only
B. 2 Only
C. Both are Correct
D. None is Correct

Questions from Test Series

Foundation Test - 11 (Environment)

3. Consider the following statements regarding Electric Vehicles.

1. Hydrogen fuel cell-run electric vehicles are bulkier than a vehicle running on Lithium-ion battery pack.
2. Hydrogen fuel cell electric vehicles take more time to charge than EVs running on Lithium-ion batteries.

Which of the above statements is/are correct?

- A. Only 1
B. Only 2
C. Both 1 & 2
D. Neither 1 nor 2

4. Consider the following statements regarding Hydrogen Fuel Cell technology:

1. Storage of hydrogen as a liquid requires cryogenic temperatures.
2. Green Hydrogen is a clean energy vector that enables deep decarbonisation of difficult-to-abate emissions from most polluting industries.
3. Hydrogen cannot be used in Internal Combustion Engines.

Which of the above statements is/are correct?

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

Current Affairs Question

5. Why is lithium a preferred element for Batteries to be used in EVs?

1. Highest energy storage capacity per kilogram.
2. Extremely lightweight.
3. Good high-temperature performance
4. Low self-discharge.

Select the correct answer using the code given below:

- A. 1, 2 and 3 only
B. 2, 3 and 4 only
C. 1, 2 and 4 only
D. 1, 2, 3 and 4

Answers with Explanations

Click [here](#) to watch the following topics on YouTube.

Questions from Crash Course

1. Which of the following statements is/are correct regarding EV30@30?

1. It is an initiative envisaged by India.
 2. The idea is to speed up the deployment of electric vehicles and target at least 30 per cent of new electric vehicle sales by 2030.
- A. 1 Only
B. 2 Only
C. Both are Correct
D. None is Correct

Answer: B

Explanation

EV30@30 CAMPAIGN

- The Clean Energy Ministerial (CEM) announced a new campaign called EV 30@30 to speed up the deployment of electric vehicles and target at least 30 percent 'new electric vehicle sales by 2030.
- The campaign will support the market for electric passenger cars, light commercial vans, buses and trucks (including battery-electric, plug-in hybrid, and fuel cell vehicle types).
- It will also work towards the deployment of charging infrastructure to supply sufficient power to the vehicles deployed.
- The CEM Electric Vehicle Initiative (EVI) recognises the importance of reducing carbon emissions in the transportation sector, which account for almost a quarter of global

greenhouse gas emissions and is one of the fastest-growing energy end use sectors.

- Governments supporting the EV30@30 Campaign include Canada, China, Finland, France, India, Japan, Mexico, the Netherlands Norway and Sweden.

2. Which of the following statements is/are incorrect regarding FAME II?

1. It provides incentives for passenger cars used for personal use.
 2. It is being implemented for a period of 5 years which was started from April 01, 2019, with a total budget of Rs. 10,000 crores.
- A. 1 Only
B. 2 Only
C. Both are Correct
D. None is Correct

Answer: A

Explanation

FAME II

- The Faster Adoption and Manufacturing of (Hybrid) and Electric Vehicles (FAME) Scheme - Phase - 2 with an outlay of Rs. 10,000 crores over a period of three years will be implemented with effect from April 1, 2019.
- The Main Objective of the scheme is to encourage faster adoption of electric and hybrid vehicles by way of offering upfront incentive on the purchase of electric vehicles and also by way of establishing necessary charging infrastructure for EV.
- In this phase two, that includes shared transport emphasis is on electrification of the public transportation.

- The second phase will also not provide any incentive for passenger cars used for personal use.
- In the two-wheelers segment, however, the focus will be on the private vehicles.
- Demand Incentives on operational expenditure mode for electric buses will be delivered through State/city transport corporation (STUS).
- In 3W and 4W segment, incentives will be applicable mainly to vehicles used for public transport or registered for commercial purposes.
- The encourage advanced technologies, the benefits of incentives will be extended to only those vehicles which are fitted with advanced batteries like a Lithium ion.
- It also proposes for the establishment of charging infrastructure, whereby about 2700 charging stations will be established in metros, other million-plus cities, smart cities and cities of hilly states across the country.
- It will ensure availability of at least one charging Station in a grid of 3 km x 3 km.
- It will offer incentives to manufacturers, who invest in developing electric vehicles and its components, including lithium-ion batteries and electric motors.
- The centre has asked states to frame their EV policy and provide additional fiscal and non- fiscal incentives to manufacturers and buyers.

Questions from Test Series

Foundation Test - 11 (Environment)

3. Consider the following statements regarding Electric Vehicles.

1. Hydrogen fuel cell-run electric vehicles are bulkier than a vehicle running on Lithium-ion battery pack.
2. Hydrogen fuel cell electric vehicles take more time to charge than EVs running on Lithium-ion batteries.

Which of the above statements is/are correct?

- A. Only 1
- B. Only 2
- C. Both 1 & 2
- D. Neither 1 nor 2

Answer: A

Explanation

- Statement 1 is correct. Because hydrogen has a poor volumetric energy density, storing enough onboard poses weight, volume, kinetics, safety and cost challenges. Hydrogen can only be stored under high pressure, at extremely low temperatures as a liquid, or in metal hydride systems to maximise volumetric energy density.
- Statement 2 is incorrect. A typical electric automobile can be fully charged in slightly over six hours, whereas an FCEV could be refuelled in five minutes and have a range of more than 350 miles. A modest amount of hydrogen can go a long way.

4. Consider the following statements regarding Hydrogen Fuel Cell technology:

1. Storage of hydrogen as a liquid requires cryogenic temperatures.
2. Green Hydrogen is a clean energy vector that enables deep decarbonisation of difficult-to-abate emissions from most polluting industries.

3. Hydrogen cannot be used in Internal Combustion Engines.

Which of the above statements is/are correct?

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

Answer: A

Explanation

- Statement 1 is correct. Storage of hydrogen as a liquid requires cryogenic temperatures.
- Statement 2 is correct. Green Hydrogen is a clean energy vector that enables deep decarbonisation of difficult-to-abate emissions from most polluting industries.
- Statement 3 is incorrect. Hydrogen can be used in Internal Combustion Engines.

Current Affairs Question

5. Why is lithium a preferred element for Batteries to be used in EVs?

- 1. Highest energy storage capacity per kilogram.
- 2. Extremely lightweight.
- 3. Good high-temperature performance
- 4. Low self-discharge.

Select the correct answer using the code given below:

- A. 1, 2 and 3 only
- B. 2, 3 and 4 only
- C. 1, 2 and 4 only
- D. 1, 2, 3 and 4

Answer: D

Explanation

Lithium-ion batteries are currently used in most electric vehicles because of their **high energy per unit mass** relative to other electrical energy storage systems.

They also have a

- High power-to-weight ratio,
- High energy efficiency,
- Good high-temperature performance,
- Low self-discharge.

Most components of lithium-ion batteries can be recycled.

Pre-Mix - 5 MCQs for Prelims**Subject - Environment****Date - 23rd February 2023**

1. Consider the following statements regarding the Sloth bear:

1. Sloth bears are extinct in India.
2. Sloth bears hibernate during the extreme winter months.
3. IUCN red list status is Vulnerable.
4. It is listed in Appendix I of CITES.

Which of the above statements is/are correct?

- A. All except 1
- B. All except 2
- C. All except 3
- D. All except 4

2. In news, Green Ammonia is called so because:

1. It is green in color which makes it a fit for large scale sustainable agriculture as it does not absorb heat energy when lying in the fields.
2. Green ammonia production is where the process of making ammonia is 100% renewable and carbon-free.

- A. 1 only
- B. 2 only
- C. Both are correct
- D. None of the above statements is correct

3. Recently, Ramagundam (Telangana) was in news. It was because of:

- A. It is the site of India's first Nuclear Fusion Reactor
- B. It is the site of India's largest Nuclear Fission Power Plant
- C. It is the site of India's largest floating solar PV plant

- D. It is the site of India's largest floating Wind power plant

4. Incorporating two of the promises made by India at the Glasgow conference last year, India recently enhanced its climate change targets for 2030.

In this context which of the following is/are true:

1. India is now committing itself to at least 45% reduction in the emissions intensity of GDP (emissions per unit of GDP) from 2005 levels.
2. The existing target was a 33% - 35% reduction.
3. India is also promising to ensure that at least 75% of installed electricity generation capacity in 2030 would be based on non-fossil fuel-based sources.
4. This is an increase from the existing 40% target.

- A. All except 4
- B. All except 3
- C. All except 2
- D. All except 1

5. What is the difference between the antelopes Oryx and Chiru? (PYQ 2011)

- A. Oryx is adapted to live in hot and arid areas whereas Chiru is adapted to live in steppes and semi-desert areas of cold high mountains.
- B. Oryx is poached for its antlers whereas Chiru is poached for its musk.
- C. Oryx exists in western India only whereas Chiru exists in north-east India only.
- D. None of the statements (a), (b) and (c) given above is correct.

Answers with Explanations

Click [here](#) to watch the following topics on YouTube.

1. Consider the following statements regarding the Sloth bear:

1. Sloth bears are extinct in India.
2. Sloth bears hibernate during the extreme winter months.
3. IUCN red list status is Vulnerable.
4. It is listed in Appendix I of CITES.

Which of the above statements is/are correct?

- A. All except 1
- B. All except 2
- C. All except 3
- D. All except 4

Answer : B

Explanation

From May 2022 Current Affairs

Sloth Bear


What is a Sloth bear, and how does it differ from other bears?

- Sloth bears can be found in Sri Lanka, India, Bhutan, and Nepal, where they can be found primarily in lowland environments.
- When it comes to food, sloth bears prefer to eat termites and ants.
- Unlike other bear species, they also habitually carry their babies in their mouths.
- They are also highly fond of honey, which is why they have been given the nickname "honey bear."
- Sloth bears do not hibernate, as is commonly believed.
- Melursus ursinus* is the scientific name for this species.

Protection Status:

- IUCN Red List: **Vulnerable**
- It is listed in the Convention on International Trade in Endangered Species (CITES) as Appendix I
- Schedule I of the Indian Wildlife Protection Act of 1972.

It faces threats such as habitat loss, poaching for body parts, and being captured for use in performances, as well as being hunted because of their aggressive behaviour and destruction of crops.



2. In news, Green Ammonia is called so because:

1. It is green in color which makes it a fit for large scale sustainable agriculture as it does not absorb heat energy when lying in the fields.
2. Green ammonia production is where the process of making ammonia is 100% renewable and carbon-free.

- A. 1 only
- B. 2 only
- C. Both are correct
- D. None of the above statements is correct

Answer - B

Explanation

- Covered in the Current Affairs of June 2022 (under Environment Section of Sleepy Classes Current Affairs module).

Context

- Production & Use of Green Hydrogen is increasing, paving greater interest in the production and use of Green Ammonia too.

Green Ammonia

- Ammonia is a pungent gas that is widely used to make agricultural fertilisers.
- Green ammonia production is where the process of making ammonia is 100% renewable and carbon-free.
- One way of making green ammonia is by using hydrogen from water electrolysis and nitrogen separated from the air.
- These are then fed into the Haber process (also known as Haber-Bosch), all powered by sustainable electricity.
- In the Haber process, hydrogen and nitrogen react together at high temperatures and pressures to produce ammonia, NH₃.
- However, the process of making ammonia is currently not a "green" process.
- It is most commonly made from methane, water and air, using steam methane reforming (SMR) (to produce the hydrogen) and the Haber process.

- Approximately 90% of the carbon dioxide produced is from the SMR process.
- This process consumes a lot of energy and produces around 1.8% of global carbon dioxide emissions.

3. Recently, Ramagundam (Telangana) was in news. It was because of:

- A. It is the site of India's first Nuclear Fusion Reactor
- B. It is the site of India's largest Nuclear Fission Power Plant
- C. It is the site of India's largest floating solar PV plant**
- D. It is the site of India's largest floating Wind power plant

Answer - C

Explanation:

- Covered in the Current Affairs of July 2022 (under Environment Section of Sleepy Classes Current Affairs module).
- The 100 MW Ramagundam floating solar PV project in Telangana is the largest one of its sort ever undertaken in India.

About Ramagundam Project

- It is equipped with cutting-edge technology as well as elements that are sensitive to the needs environment.
- The project covers an area of the reservoir that is equivalent to 500 acres, arranged in 40 sections, each of which possesses 2.5 MW.
- One floating platform and an array of 11,200 solar modules make up each individual block.
- The solar panels are supported by HDPE (high-density polyethylene)

floaters that have been made specifically for this purpose.

- Through the use of a specialised HMPE (High Modulus Polyethylene) rope, the complete floating system is secured to the dead weights that have been positioned in the bed of the balancing reservoir.
- This project is one of a kind due to the fact that all of the electrical equipment, such as an inverter, transformer, high-temperature panel, and SCADA (Supervisory Control and Data Acquisition), are all housed on floating Ferro cement platforms.
- **A floating solar power plant is going to be built in Madhya Pradesh's Khandwa.**
- **Said to be the world's largest floating solar plant, it will generate 600 Megawatt power by 2022-23.**
- **The project is estimated to be worth over ₹3000 crores.**
- **Omkareshwar Dam is built on the Narmada river.**

4. Incorporating two of the promises made by India at the Glasgow conference last year, India recently enhanced its climate change targets for 2030.

In this context which of the following is/are true:

1. India is now committing itself to at least 45% reduction in the emissions intensity of GDP (emissions per unit of GDP) from 2005 levels.
2. The existing target was a 33% - 35% reduction.
3. India is also promising to ensure that at least 75% of installed electricity generation capacity in 2030 would be based on non-fossil fuel-based sources.
4. This is an increase from the existing 40% target.

- A. All except 4
- B. All except 3
- C. All except 2
- D. All except 1**

Answer - D

Explanation:

Covered in the Current Affairs of August 2022 (under Environment Section of Sleepy Classes Current Affairs module).

Context

- Incorporating two of the promises made by Prime Minister Narendra Modi at the Glasgow conference last year, India recently enhanced its climate change targets for 2030.

Updated NDCs

- India is now committing itself to at least a 45% reduction in the emissions intensity of GDP (emissions per unit of GDP) from 2005 levels.
- Electricity Generation - India is also promising to ensure that at least 50% of installed electricity generation capacity in 2030 would be based on non-fossil fuel-based sources.
- This is an increase from the earlier 40% target.

5.What is the difference between the antelopes Oryx and Chiru? (PYQ 2011)

- A. Oryx is adapted to live in hot and arid areas whereas Chiru is adapted to live in steppes and semi-desert areas of cold high mountains.**
- B. Oryx is poached for its antlers whereas Chiru is poached for its musk.
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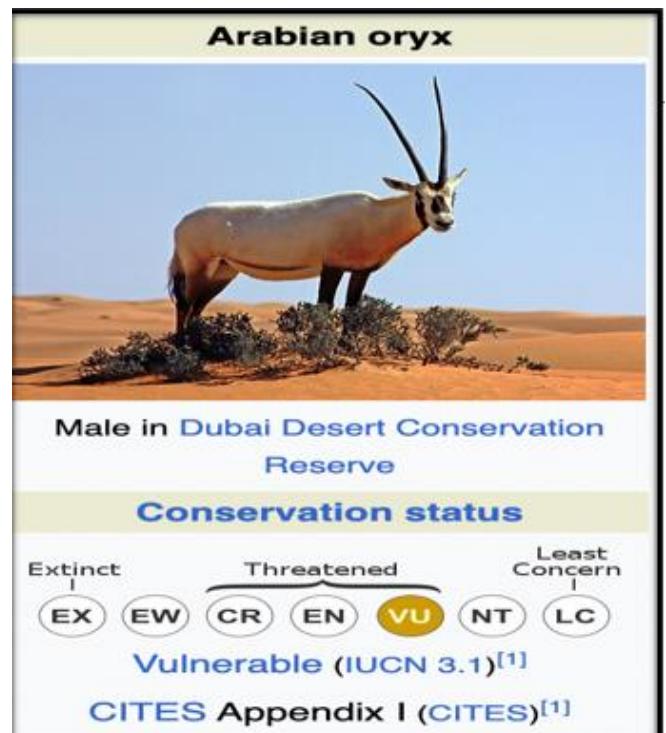
D. None of the statements (a), (b) and (c) given above is correct.

Answer : A

Explanation

Oryx

- Oryx is a type of antelope.
- They are found in Arabian Peninsula and North and East Africa.
- The Arabian oryx was only saved from extinction through a captive-breeding program and reintroduction to the wild.
- North Africans are extinct in wild. East Africans are still present.
- All oryx species prefer near-desert conditions and can survive without water for long periods.



Chiru

- Chiru (or chiru goat) is also referred to as Tibetan antelope.**
- It is a sociable, tiny, graceful antelope-like animal that lives on the Tibetan Plateau's high alpine steppes.**

- They are mainly seen in the Ladakh region in India.
- The underfur of the Tibetan antelope, or “soft gold” as it’s called by poachers, is the warmest and softest wool in the animal kingdom.
- Predominantly, this underfur is woven into a traditional shawl known as a *shahtoosh*.
- ‘Near Threatened’ in IUCN Red List.
- It has been enlisted in Schedule I of Wildlife Protection Act, 1972.
- To enhance its protection, its prime habitats have been declared as Wildlife Sanctuaries viz. Karakorma Wildlife Sanctuary and Changthang Cold Desert Wildlife Sanctuary.



Pre-Mix – 5 MCQs for Prelims

Subject – Environment

Date – 03rd March 2023

1. Consider the following statements regarding Ecological Equivalents

1. Organisms occupying similar ecological niches but living in different regions.
2. They include the same species living in different niches.

Which of the above statements is/are correct?

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

2. Which of the following forest carbon pools has the maximum amount of carbon stock?

- A. Above-ground biomass
- B. Below-ground biomass
- C. Deadwood
- D. Soil

3. Consider the following statements regarding Bioplastics

1. They are mainly derived from carbohydrate-rich biomass.
2. They are always biodegradable.

Which of the above statements is/are incorrect?

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

4. According to GHG Protocol, which of the following is/are correctly matched?

1. Scope 1 – Direct Emissions
2. Scope 2 – Indirect Emissions
3. Scope 3 – Avoided Emissions

Choose the correct option.

- A. 1 and 2 only
- B. 1 and 3 only
- C. 2 and 3 only
- D. All of the above.

5. Consider the following statements regarding Committed warming

1. It is also known as Pipeline warming.
2. It refers to future increases in global temperatures that will be caused by greenhouse gases that have already been emitted.

Which of the above statements is/are incorrect?

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

Answers with Explanations

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1. Consider the following statements regarding Ecological Equivalents

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2. They include the same species living in different niches.

Which of the above statements is/are correct?

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

Answer : C

Explanation

ECOLOGICAL EQUIVALENTS

- Organisms occupying **similar ecological niches** but living in **different regions** are called ecological equivalents.
- Certain species of **epiphytic orchids of Western Ghats of India** differ from the epiphytic orchids of South America. But they are epiphytes.
- Wooded areas - Owls feed on mice, in human habitations - Cats feed on mice
- Species of the grass lands of Western Ghats of India differ from the grass species of temperate grass lands of Steppe in North America.

ECOLOGICAL EQUIVALENTS

- But they are all ecologically primary producers and fulfilling similar roles in their respective communities.
- They also include **same species living in different niches**.
- Example - Fox is a carnivore but in case of winter shortage, is forced to feed on dried berries and grapes.

2. Which of the following forest carbon pools has the maximum amount of carbon stock?

- Above-ground biomass
- Below-ground biomass
- Deadwood
- Soil

Answer : D

Explanation



TABLE 9.2 Different forest carbon pools

Pools	Description
Living Biomass	
Above ground biomass (AGB)	All living biomass above the soil including stems, branches, bark, seeds and foliage.
Below ground biomass	All living biomass of live roots. Fine roots of less than 2mm diameter (country specific) are often excluded because these often cannot be distinguished from soil organic matter or litter.
Dead Organic Matter	
Dead wood	Includes all non-living woody biomass not contained in the litter, either standing or lying on the ground. Dead wood also includes dead roots and stumps larger than or equal to 10cm in diameter or any other diameter used by the country.
Litter	Includes all non-living biomass with a diameter less than a minimum diameter chosen by the country (for FSI 5 cm), lying dead, in various states of decomposition above the mineral or organic soil.
Soil	
Soil organic matter	Includes organic carbon in mineral and organic soils (including peat) to a specific depth chosen by the country (for FSI 30 cm) and applied consistently through the time series.

FINDINGS

Carbon stock in Indian forest

There is an increase of 79.4 million tonnes of carbon stock as compared to the estimates of the 2019 report.

Max Carbon stock (State wise)	AruP > MP > Chhattis > Maha
Max Carbon stock (State wise: Per ha)	J& K > HP > Sikkim > A & N Island

Component	Carbon Stock in forest in 2021	Carbon stock in forest in 2019	Net change in Carbon stock	Annual change in Carbon stock
Above Ground Biomass	2,319.9	2,256.5	63.4	31.7
Below Ground Biomass	718.9	700.8	18.1	9.1
Dead wood	47.7	35.8	11.9	6.0
Litter	107.3	127.9	-20.6	-10.3
Soil	4,010.2	4,003.6	6.6	3.3
Total	7,204.0	7,124.6	79.4	39.7

Table 9.1
Forest Carbon Stock under different pools and changes wrt previous assessment

3. Consider the following statements regarding Bioplastics

- They are mainly derived from carbohydrate-rich biomass.
- They are always biodegradable.

Which of the above statements is/are incorrect?

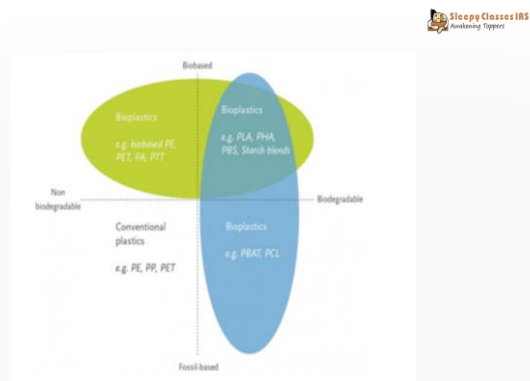
- 1 only
- 2 only
- Both 1 and 2
- Neither 1 nor 2

Answer : B

Explanation

Bioplastics

- Bioplastics is a term that broadly includes **bio (mass)-derived plastics and biodegradable plastics**.
- Bioplastics are plastics derived from **renewable biomass sources, such as vegetable fats and oils, corn starch, straw, woodchips, food waste, etc.**
- Bioplastics can be made from agricultural byproducts and also from used plastic bottles and other containers using microorganisms.



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Bioplastics

- A study was conducted by the **University of Bonn in Germany** on the use of bioplastics and its effects on the environment.
- Bioplastics — often promoted as a climate-friendly alternative to petroleum-based plastics — **may lead to an increase in greenhouse gas emissions.**
- Also, **not all bioplastics are biodegradable nor biodegrade more readily** than commodity fossil-fuel derived plastics.

4. According to GHG Protocol, which of the following is/are correctly matched?

- Scope 1 – Direct Emissions
- Scope 2 – Indirect Emissions
- Scope 3 – Avoided Emissions

Choose the correct option:

- 1 and 2 only
- 1 and 3 only
- 2 and 3 only
- All of the above.

Answer : A

Explanation

Direct and Indirect Emissions

- Direct GHG emissions** are emissions from sources that are owned or controlled by the **reporting entity**.
- Indirect GHG emissions** are emissions that are a consequence of the activities of the reporting entity but occur at **sources owned or controlled by another entity**.

Three Scopes

- GHG Protocol further categorizes these direct and indirect emissions into three broad scopes:
 - Scope 1:** All direct GHG emissions.
 - Scope 2:** Indirect GHG emissions from consumption of purchased electricity, heat or steam.
 - Scope 3:** Other indirect emissions, such as the extraction and production of purchased materials and fuels, transport-related activities in vehicles not owned or controlled by the reporting entity, electricity-related activities (e.g. T&D losses) not covered in Scope 2, outsourced activities, waste disposal, etc

Scope 4 Emissions

- The most common use of the term Scope 4 emissions is to describe **avoided emissions**.
- Dating back to 2013, the GHG Protocol identified **avoided emissions as emission reductions** which occur outside of a product's lifecycle or value chain, but **as a result of the use of the product**.
- Products that may have significantly avoided emissions include **teleconferencing services**.

5. Consider the following statements regarding Committed warming

- It is also known as Pipeline warming.
- It refers to future increases in global temperatures that will be caused by greenhouse gases that have already been emitted.

Which of the above statements is/are incorrect?

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 nor 2

Answer : D

Explanation

Committed Warming

- "Committed warming," also known as "**pipeline warming**."
- It refers to **future increases** in global temperatures that will be caused by **greenhouse gases that have already been emitted**.
- A study of **18 Earth system models** found that when emissions were cut off, some continued warming for decades to hundreds of years, while others began cooling quickly.
- Another study, published in June 2022, found a **42% chance that the world is already committed to 1.5 degrees**.

Pre-Mix – 5 MCQs for Prelims**Subject – Environment****Date – 10th March 2023****1. Consider the following statements regarding International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)**

1. It is a non legally binding agreement.
2. It was adopted by the 31st Session of the Conference of the Food and Agriculture Organization (FAO) of the United Nations in 2001.

Which of the above is/are correct?

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

2. Airshed approach is related to which of the following:

- A. Increasing cloud cover to increase precipitation
- B. Increasing cloud cover to combat climate change
- C. Control of environmental pollution
- D. None of the above.

3. Consider the following statements regarding Cheetah:

1. Cheetah prefer dense to moderate forests ecosystems
2. The African subspecies of Cheetah is critically endangered as per the IUCN Red List
3. The largest population of the Asiatic Cheetah is found in Iran

Which of the statements given above is/are correct?

- A. 1 and 2 only
- B. 2 and 3 only

- C. 3 only
- D. 1, 2 and 3

4. Consider the following statements related to kelp forests

1. Kelp forests are found in deep oceanic tropical water
2. Kelp forests harbour the highest biodiversity in the oceanic ecosystem.
3. Kelp forests are found in shallow waters as they need sunlight for photosynthesis

Choose the correct options

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

5. Harit Dhara is related to

- A. Reducing the methane emissions by the livestock
- B. Increasing greenery and creating micro-forests around IT Department buildings and public locations.
- C. Increasing the green cover by compensatory afforestation
- D. None of the above.

Answers with Explanations**Click [here](#) to watch the following topics on YouTube.****1. Consider the following statements regarding International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)**

1. It is a non legally binding agreement.
2. It was adopted by the 31st Session of the Conference of the Food and Agriculture Organization (FAO) of the United Nations in 2001.

Which of the above is/are correct?

- A. 1 only

- B. 2 only
- C. Both 1 and 2
- D. Neither 1 nor 2

Answer : B

Explanation

- The ninth session of the governing body of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) began September 19, 2022 in Delhi. About ITPGRFA
- The International Treaty on Plant Genetic Resources for Food and Agriculture is a comprehensive international agreement in harmony with the Convention on Biological Diversity, which aims at guaranteeing food security through the conservation, exchange and sustainable use of the world's plant genetic resources for food and agriculture (PGRFA), the fair and equitable benefit sharing arising from its use, as well as the recognition of farmers' rights.
- It is also known as Seed Treaty.
- The International Treaty is the first legally-binding international instrument to formally acknowledge the enormous contribution of indigenous people and small-holder farmers as traditional custodians of the world's food crops.

2. Airshed approach is related to which of the following:

- A. Increasing cloud cover to increase precipitation
- B. Increasing cloud cover to combat climate change
- C. Control of environmental **pollution**
- D. None of the above.

Answer : C

Explanation

Airshed approach to deal with air pollution:

- Under this, policymakers will plan actions keeping in view geographical,

meteorological and other factors which pollute air within the airshed instead of making policies guided by states' boundaries.

- Currently, airshed approach is being implemented for "Delhi-NCR and adjoining areas".
- The World Bank defines an airshed as a common geographic area where pollutants get trapped, creating similar air quality for everyone.

3. Consider the following statements regarding Cheetah:

1. Cheetah prefer dense to moderate forests ecosystems
2. The African subspecies of Cheetah is critically endangered as per the IUCN Red List
3. The largest population of the Asiatic Cheetah is found in Iran

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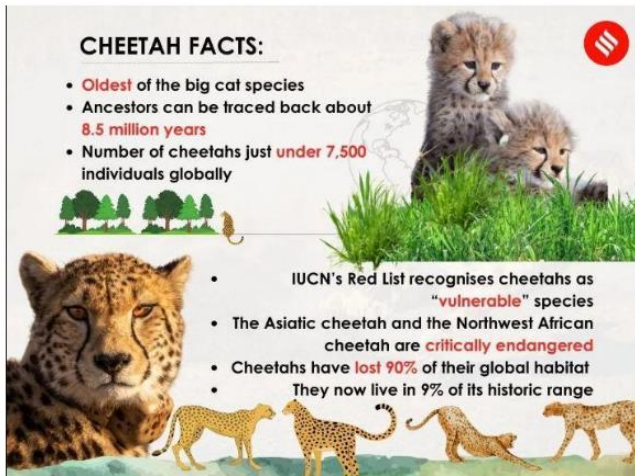
- A. 1 and 2 only
- B. 2 and 3 only
- C. 3 only
- D. 1, 2 and 3

Answer : C

Explanation

- Cheetahs belong to the cat family and are native to Africa and Asia.
- It is the fastest land animal estimated to be capable of running at 80 to 128 km/h/.
- There are two major Cheetah subspecies – African and the Asian Cheetah.
- The Asiatic cheetah is slightly smaller and slender than the African Cheetah.
- The Asian Cheetah having which is critically endangered with 100 individuals left, are currently found in Iran

- The African cheetah is found across Africa. It has a population of about 10,000 individuals.
- Cheetahs live in open plains; their habitat is predominantly where their prey lives - grasslands, scrubs and open forest systems, semi-arid environments and temperatures that tend to be hotter compared to cooler regimes.



4. Consider the following statements related to kelp forests

1. Kelp forests are found in deep oceanic tropical water
2. Kelp forests harbour the highest biodiversity in the oceanic ecosystem.
3. Kelp forests are found in shallow waters as they need sunlight for photosynthesis

Choose the correct options

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

Answer : C

Explanation

- Kelp are large brown algae that live in cool, relatively shallow waters close to the shore.
- They grow in dense groupings much

like a forest on land.

- These underwater towers of kelp provide food and shelter for thousands of fish, invertebrates, and marine mammal species.

5. Harit Dhara is related to

- A. Reducing the methane emissions by the livestock
- B. Increasing greenery and creating micro-forests around IT Department buildings and public locations.
- C. Increasing the green cover by compensatory afforestation
- D. None of the above.

Answer : A

Explanation

Harit Dhara

- Harit Dhara is an anti-methanogenic feed supplement prepared from the natural phyto-sources.
- The Harit Dhara developed by the Indian Council of Agricultural Research, through the comprehensive research over a decade.
- It is found very effective in reducing the enteric methane emission upto 17% to 20% when incorporated in the livestock feed.

Pre-Mix – 5 MCQs for Prelims**Subject – Environment****Date – 17th March 2023**

1. With reference to Reserved and Protected forests, consider the following statements

1. Rights to all activities like hunting, grazing, etc in reserved forests are banned unless specific orders are issued otherwise.
2. In protected forests, rights to activities like hunting and grazing are sometimes given to communities who sustain their livelihood from forest resources

Which of the statement given above is/are correct?

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

2. What is the difference between turtle and tortoise

1. Tortoise lives completely on land where as turtle can be aquatic or terrestrial living being.
2. Mostly tortoise have flat shaped shell where as turtles have rounded, domed shaped shells
3. Turtles shed scutes from there shells where as tortoise don't
4. Tortoises are primarily herbivores where as turtles are omnivores

Which of the statement given above is/are correct?

- A. 1 and 4 only
- B. 2 and 3 only
- C. 1, 3 and 4 only
- D. 1, 2 and 4 only

3. Which of the following can act as methane sequesters

1. Livestock

2. Methane Hydrates
3. Permafrost islands of Arctic
4. Termites

Which of the options given above is/are correct?

- A. 3 and 4 only
- B. 2, 3 and 4 only
- C. 2 and 3 only
- D. 1 and 4 only

PYQ

Q. Which of the following statements are correct about the deposits of 'methane hydrate'?

1. Global warming might trigger the release of methane gas from these deposits.
 2. Large deposits of 'methane hydrate' are found in Arctic Tundra and under the seafloor.
 3. Methane in the atmosphere oxidizes to carbon dioxide after a decade or two.
- Select the correct answer using the code given below.**

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

4. Consider the following statements with reference to the 'Ashwagandha':

1. It is grown in subtropical and tropical climates.
2. India and the UK have collaborated to conduct a study on 'Ashwagandha' for promoting recovery from Covid-19.
3. It is used as an immunity enhancer.

Select the correct answer using the code given below:

- A. Only 1 statement
- B. Only 2 statements
- C. All 3 statements
- D. None of the above

5. Which of the following Supreme Court cases laid the foundation for establishing the National Green Tribunal?

- Citizens for Green Doon vs Union Of India
- Pandarinathan Govindarajulu vs The Union Of India
- Kalpavriksh Ors vs Union Of India
- Mahesh Chander Mehta vs Union Of India & others

Answers with Explanations

Click [here](#) to watch the following topics on YouTube.

1. With reference to Reserved and Protected forests, consider the following statements

- Rights to all activities like hunting, grazing, etc in reserved forests are banned unless specific orders are issued otherwise.
- In protected forests, rights to activities like hunting and grazing are sometimes given to communities who sustain their livelihood from forest resources

Which of the statement given above is/are correct?

- 1 only
- 2 only
- Both 1 and 2
- Neither 1 nor 2

Answer : C

Explanation

- Reserved and protected forests are large areas of land dominated by trees. In India, unlike the National Parks and Wildlife Sanctuaries, these are declared **by the respective State Government** but the **land rights to forests are typically acquired and owned by the Government of India.**

Reserved Forests	Protected Forests

Reserved forests are the forest lands that enjoy legal protection.

Protected forests also enjoy legal protection, however, the main focus is on local resources and inhabitants.

Most activities like hunting and poaching are banned in reserved forests unless specifically allowed by the government.

Local communities often have the right to perform activities like hunting and poaching in protected forests.

Reserved forests are protected with the aim to protect the abundant resources present in them.

Protected forests are declared with the aim to protect against the depletion of natural resources.

More than half of the forest area is under the category of reserved forests in India.

Protected forests make up at least one-third of the total forest area in India.

Additional Information:

- Typically, reserved forests are often upgraded to the status of wildlife sanctuaries, which in turn may be upgraded to the status of national parks, with each category receiving a higher degree of protection and government funding.

In terms of protection,

- National Parks > Wildlife Sanctuary > Reserved forests > Protected forests

2. What is the difference between turtle and tortoise

1. Tortoise lives completely on land where as turtle can be aquatic or terrestrial living being.
2. Mostly tortoise have flat shaped shell where as turtles have rounded, domed shaped shells
3. Turtles shed scutes from there shells where as tortoise don't
4. Tortoises are primarily herbivores where as turtles are omnivores

Which of the statement given above is/are correct?

- A. 1 and 4 only
- B. 2 and 3 only
- C. 1, 3 and 4 only
- D. 1, 2 and 4 only

Answer : C

Explanation

Similarities between turtles and tortoises:

- Are encased in a bony shell with scutes (thickened horny or bony plates) made of keratine.
- Have ribs and vertebrae that are fused to their shells.
- Have a pelvic girdle that sits inside their rib cage.
- Lay eggs on land into excavated nests of earth or sand.
- Are cold-blooded, relying on their environment to regulate their body processes.
- Have a hard beak rather than teeth.

Difference between turtle and tortoise

Basis	Turtle	Tortoise
Habitat	Turtles can be completely aquatic (aside from egg-laying), semi-aquatic, or mostly	Tortoises aren't equipped for water and live completely on

	(but not completely) terrestrial swimmers	land Good swimmers	Bad
Shell shape	turtles generally live or spend lots of time in water their shells are relatively flat, thin, and streamlined, to help them swim and dive. Exception to this rule are box turtles and some mud turtles which have dome-shaped shells.	Tortoises are land-dwelling and have heavier, rounded, dome-shaped shells to provide protection from predators	
Scute shedding	Turtles shed their scutes. One of the reasons they bask in the sun is to dry their scutes and help them flake off	tortoises don't shed anything from their shells. Their keratin is constantly growing without shedding	
Feet and leg shapes	Turtles either have webbed long claws or in the case of aquatic turtles, there are true flippers rather than feet.	Tortoises have feet that are padded and stumpy, with horned, scaly toes, looking a little like tiny elephant feet	
Diet	Turtles are omnivores; very few are herbivores and carnivores.	Tortoises are primarily herbivores	

Lifespan	average lifespan for a turtle is around 30 years, with larger sea turtles averaging around 65 years.	Tortoises have an average lifespan of 90 years, with their lifespan generally linked to their size. Giant tortoises are renowned for living well over 100 years – possibly even over 200 years
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3. Which of the following can act as methane sequestrers

1. Livestock
2. Methane Hydrates
3. Permafrost islands of Arctic
4. Termites

Which of the options given above is/are correct?

- A. 3 and 4 only
- B. 2, 3 and 4 only
- C. 2 and 3 only
- D. 1 and 4 only

Answer : C

Explanation

- Any process that consumes methane from the atmosphere can be considered a “sink or sequester” of methane. Some of sequestrers are

- Methane Hydrates are sinks where methane is isolated. However, as the planet warms, some of these deep, cold sediments are melting, sending methane bubbling to the surface – one of the great risks to lifeforms on earth. As the question ask about areas which can act as sequestrers, thus statement 2 is correct
- Methane hydrate is formed when hydrogen-bonded water and methane gas come into contact at high pressures and low temperatures such as in oceans.
- AKA methane clathrate, hydromethane, methane ice, fire ice, natural gas hydrate, and gas hydrate.
- Permafrost are the long-frozen soil below the surface which captures large amount of carbon dioxide and methane. But with climate change it's melting which is making them methane emitters.
- The atmosphere, and more precisely the troposphere, is the largest sink for methane. Methane in the troposphere reacts with hydroxyl (OH) radicals, forming mainly water and carbon dioxide. In total this reaction accounts for about 500 million tonnes of methane each year.

Livestocks are methane emitters

- Domesticated livestock such as cattle, buffalo etc., produce large amounts of methane as part of their normal digestive processes. In the stomach, microbial fermentation converts feed into products that can be digested. This process produces methane as a by-product, which is exhaled by the animal (cow breath)
- Termites are methane emitters – microbes in the guts of termites produce methane through anaerobic fermentation as part of their normal digestive process.

PYQ

Q. Which of the following statements are correct about the deposits of 'methane hydrate'?

1. Global warming might trigger the release of methane gas from these deposits.
2. Large deposits of 'methane hydrate' are found in Arctic Tundra and under the seafloor.
3. Methane in the atmosphere oxidizes to carbon dioxide after a decade or two.

Select the correct answer using the code given below:

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

4. Consider the following statements with reference to the 'Ashwagandha':

1. It is grown in subtropical and tropical climates.
2. India and the UK have collaborated to conduct a study on 'Ashwagandha' for promoting recovery from Covid-19.
3. It is used as an immunity enhancer.

Select the correct answer using the code given below:

- A. Only 1 statement
- B. Only 2 statements
- C. All 3 statements
- D. None of the above.

Answer : C

Explanation

- Statement 1 is correct: Ashwagandha is globally distributed in Africa, Mediterranean to India and Sri Lanka.

- This species grows in subtropical and tropical climates and prefers dry weather for successful growth.
- Within India, it is distributed in the sub-Himalayan tracts, ascending up to an altitude of 1000 m.
- It is found throughout the drier parts (subtropical) of India like Rajasthan, Punjab, Haryana, Uttar Pradesh, Gujrat, Maharastra and Madhya Pradesh.
- Statement 2 is correct. Recently, India and the UK have collaborated to conduct a study on 'Ashwagandha (AG)' for promoting recovery from Covid-19.
- After the trial's success, 'Ashwagandha' will be a proven medicinal treatment to prevent infection and be recognised by the scientific community worldwide.
- This is the first time that the Ministry of Ayush has collaborated with a foreign institution to investigate its efficacy on Covid-19 patients.
- Statement 3 is correct. Ashwagandha (*Withania somnifera*) is a medicinal herb. It is reputed as an immunity enhancer.
- Ashwagandha is one of the most widespread tranquilisers used in India.

Additional Information

- It is classified as an adaptogen, which means that it can help the body to manage stress.
- Ashwagandha also boosts brain function and lowers blood sugar and helps fight symptoms of anxiety and depression.

5. Which of the following Supreme Court cases laid the foundation for establishing the National Green Tribunal?

- A. Citizens for Green Doon vs Union Of India

- B. Pandarinathan Govindarajulu vs The Union Of India
- C. Kalpavriksh Ors vs Union Of India
- D. Mahesh Chander Mehta vs Union Of India & others

Answer : D

Explanation

In MC Mehta vs UOI (1986), then Chief Justice of India, Justice P.N. Bhagwati had suggested setting up Environmental Courts due to more and more cases involving issues of environmental pollution, ecological destruction and conflicts over natural resources. Thereafter in 2010, the Parliament passed the National Green Tribunal Act establishing the NGT. India is the 3rd country in the world to have a full fledged NGT after New Zealand and Australia.

Pre-Mix – 5 MCQs for Prelims**Subject – Environment****Date – 24th March 2023**

1. Consider the following drugs which are toxic to Vultures

1. Diclofenac
2. Ketoprofen
3. Flunixin
4. Meloxicam

Which of the above is/are correct?

- A. 1 only
- B. 1 and 2 only
- C. 1, 2 and 3 only
- D. All of the above

2. Consider the following statements regarding Budget 2023:

1. **Central excise duty exemption has also been** provided to CBG that's blended with natural gas.
2. Gobardhan scheme aims to augment the income of farmers by converting biodegradable waste into compressed biogas (CBG).

Which of the above statements is/are correct?

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

3. Consider the following statements related to Biodiversity in India

1. India is one of the 17 Megadiverse countries in the world.
2. India ranks eighth in the world and fourth in Asia among the mega-diverse countries in the world.

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. Which of the following statements correctly defines the levelized cost of hydrogen?

1. It is a variable that indicates how much it costs to produce 1 kg of Green Hydrogen.
2. It takes into account the estimated costs of the investment required and the cost of operating the assets involved in its production.
3. It includes the storage and transportation costs also.

Choose the correct option from below:

- A. 1 and 3 only
- B. 2 and 3 only
- C. 1 and 2 only
- D. All the statements are correct

5. Consider the following statements regarding Transition bonds

1. Transition bonds enable entities that would otherwise not qualify to issue green bonds to obtain sustainability-related financing.
2. They act as bridge between green and brown finance.

Which of the above is/are incorrect

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

Answers with Explanations

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Which of the above is/are correct?

- A. 1 only
- B. 1 and 2 only
- C. 1, 2 and 3 only
- D. All of the above.

Answer : C

Explanation

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2. Gobardhan scheme aims to augment the income of farmers by converting biodegradable waste into compressed biogas (CBG).

Which of the above statements is/are correct?

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

Answer : C

Explanation

- In the budget, a central excise duty exemption has also been provided to CBG that's blended with natural gas. CBG comes under the ambit of the goods and services tax (GST) but companies end up paying central excise duty as well when they blend

the biogas with compressed natural gas (CNG) for further sale since natural gas is not covered by GST. This leads to double taxation, which the budget aims to address.

- 500 new 'waste to wealth' plants for promoting a circular economy with a total investment of Rs 10,000 crore under the GOBAR-Dhan scheme in her budget speech in the Parliament on February 1, 2023.
- Of the 500 new plants announced, 200 will be compressed biogas plants (CBG), including 75 in cities and the remaining 300 will be community or cluster-based plants.

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1. India is one of the 17 Megadiverse countries in the world.
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Explanation

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2. It takes into account the estimated costs of the investment required and the cost of operating the assets involved in its production.
3. It includes the storage and transportation costs also.

Choose the correct option from below:

- A. 1 and 3 only
- B. 2 and 3 only
- C. 1 and 2 only
- D. All the statements are correct

Answer : C

Explanation

- The levelized cost of hydrogen (LCOH) is a methodology used to account for all of the capital and operating costs of producing hydrogen and therefore enables different production routes to be compared on a similar basis. The same methodology is applied for electricity production, energy storage etc. The LCOH doesn't include H₂ storage and transport costs which may be required depending upon the application.

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5. Consider the following statements regarding Transition bonds

1. Transition bonds enable entities that would otherwise not qualify to issue green bonds to obtain sustainability-related financing.
2. They act as bridge between green and brown finance.

Which of the above is/are incorrect

- A. 1 only
- B. 2 only

- C. Both 1 and 2
- D. Neither 1 nor 2

Answer : C

Explanation

- Globally, the industrial sector accounts for nearly 30 per cent of greenhouse gas (GHG) emissions and India is no different. And maintaining the 2°C temperature goal, as envisaged in the 2015 Paris Agreement, requires transitioning this sector.
- If you consider hard-to-abate industries such as shipping and aviation, chemicals, steel, and cement, decarbonisation is a complex process, and transformation happens in a series of phases. Such brown industries require major investments to achieve any significant reduction in emissions.
- To add to this, traditional forms of sustainable finance usually do not classify investments in these business activities as "green." And this is where transition bonds come in.
- Transition bond is a class of debt instruments that maintain the transparency and rigour that characterise green bonds but are designed to be more inclusive in their standards.
- Unlike green bonds that are earmarked to raise money for climate and environmental projects, transition bonds can be issued by firms aspiring to reduce their GHG emissions. In other words, these bonds enable entities that would otherwise not qualify to issue green bonds to obtain sustainability-related financing.

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Click [Here](#).

Pre-Mix – 5 MCQs for Prelims**Subject – Environment****Date – 28th March 2023**

1. Which of the following statements are appropriate to Mangrove Sites?

1. Mangrove plants require an appropriate mix of saline water and freshwater.
2. Mangrove plants require mudflats to enable it to grow and develop.
3. Mangrove plants are found in the inter-tidal zones of sheltered coasts.
4. Mangrove vegetation has been reported in all the coastal States including Andaman and Nicobar Islands.

Select the correct answer using the code given below:

- A. 1 and 2 only
- B. 1, 3 and 4 only
- C. 2, 3 and 4 only
- D. 1, 2, 3 and 4

2. Consider the following statements regarding Millet

1. Millets have a high glycemic index.
2. There are nine types of millet grown in India.
3. India is the highest producer of millets in the globe and the 5th largest exporter of millets.

Which of the above statements is true?

- A. 1 & 2 only
- B. 1 & 3 only
- C. 2 & 3 only
- D. 3 only

3. Consider the following animals: (2013)

1. Sea cow
2. Sea horse
3. Sea lion

Which of the above is/are mammal/mammals?

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

4. Consider the following statements about the Horseshoe Crab recently seen in the news

1. They are found only in the Indian Ocean.
2. Tamil Nadu has the highest population of the Horseshoe Crab.
3. Their blue blood contains Limulus amebocyte lysate (LAL) which has medicinal significance.

Which of the above statements is true?

- A. 1 & 2 only
- B. 1 & 3 only
- C. 2 & 3 only
- D. 3 only

5. Recently, Barda Wildlife sanctuary was in the news for being in consideration for the second home to Asiatic lions.

It is in which of the following states?

- A. Rajasthan
- B. Madhya Pradesh
- C. Gujarat
- D. None of the above.

Answers with Explanations

Click [here](#) to watch the following topics on YouTube.

1. Which of the following statements are appropriate to Mangrove Sites?

1. Mangrove plants require an appropriate mix of saline water and freshwater.
2. Mangrove plants require mudflats to enable it to grow and develop.
3. Mangrove plants are found in the inter-tidal zones of sheltered coasts.

4. Mangrove vegetation has been reported in all the coastal States including Andaman and Nicobar Islands.

Select the correct answer using the code given below:

- A. 1 and 2 only
B. 1, 3 and 4 only
C. 2, 3 and 4 only
D. 1, 2, 3 and 4

Answer : C

Explanation

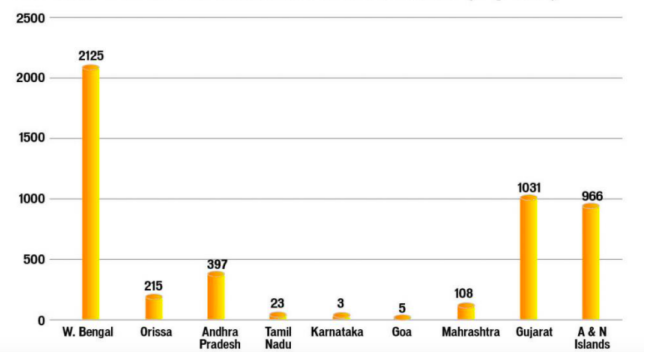


- Mangroves represent a characteristic littoral (near the sea shore) forest ecosystem.
- These are mostly evergreen forests that grow in sheltered low lying coasts, estuaries, mudflats, tidal creeks backwaters (coastal waters held back on land), marshes and lagoons of tropical and subtropical regions.
- They are referred to as 'tidal forests' and belong to the category of 'tropical wetland rainforest ecosystem'.



- Mangroves are highly productive ecosystems.
- They protect the shoreline from the effect of cyclones and tsunamis.
- They are among the first lines of defense against incoming cyclones, storm surges and wind shear and more than proved their worth during the devastating Asian tsunami of 2004.
- Mangrove forests are known to capture massive amounts of carbon and sequester (trap and store) it for millennia.
- They serve as breeding, feeding and nursery grounds for most of the commercial fishes and crustaceans on which thousands of people depend for their livelihood.
- Since mangroves are located between the land and sea, they represent the best

DISTRIBUTION OF MANGROVES IN INDIA (Sq. Km)



example of ecotone.

2. Consider the following statements regarding Millet

1. Millets have a high glycemic index.
2. There are nine types of millet grown in India.
3. India is the highest producer of millets in the globe and the 5th largest exporter of millets.

Which of the above statements is true?

- A. 1 & 2 only
B. 1 & 3 only
C. 2 & 3 only
D. 3 only

Answer : C

Explanation

- 'Millets' were among the first crops to be domesticated in India with several evidence of its consumption during the Indus valley civilization.
- In India, millets are primarily a kharif crop (Monsoon/Autumn crops – July to November), requiring less water and agricultural inputs than other similar staples.
- Millets are a group of small-seeded annual grasses that are grown as grain crops primarily on marginal land in dry areas and belong to the Poaceae family.
- The sudden global fame of this coarse grain can be traced back to March 2021, when the United Nations (UN) General Assembly at its 75th session declared 2023 the International Year of Millets (IYM2023).
- They are **hardy, salinity-tolerant**, and can grow in **drought-prone environments** with **poor soils**, even in temperatures up to **50 degrees Celsius**, they minimise the risk to farmers and communities.

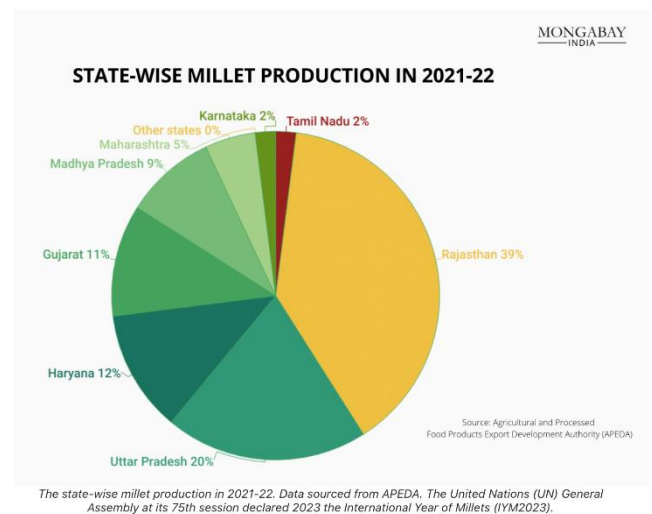
Health Benefits

- Millets have a low glycemic index which helps in diabetes management.
- The high fiber content in millets acts as pre-biotics and thus helps to maintain a healthy gut microbiome.
- Millets are absolutely gluten-free and it is good for celiac patients.
- Millets are rich in antioxidants which protect our cells from free radicals.

Millet production in India

- There are nine types of Millet grown in India.

- The major millets are Sorghum, Pearl Millet and Finger Millet covering 95% of the total millet growing area in India
- The rest 5% are Little Millet, Foxtail Millet, Barnyard Millet, Proso Millet, Kodo Millet, and Browntop Millet.
- India is the highest producer of millets in the globe and the 5th largest exporter of millets.
- In 2020, the millet production in India was 28 million metric tons.



3. Consider the following animals: (2013)

1. Sea cow
2. Sea horse
3. Sea lion

Which of the above is/are mammal/mammals?

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

Answer : B

Explanation

- Seahorses are tiny fishes that are named for the shape of their head, which looks like the head of a tiny horse. There are at least 50 species of seahorses.
- They are classified as fish, in the genus Hippocampus.

- Seahorses are found in shallow coastal waters in latitudes from about 52° N to 45° S.
- Their habitats include coral reefs, mangroves, sea grass beds, and estuaries.



Seahorses in India

- The coastal ecosystems of India house nine out of 12 species found in the Indo-Pacific.
- It is distributed across diverse ecosystems such as seagrass, mangroves, macroalgal beds, and coral reefs.
- These nine species are distributed along the coasts of eight States and five Union Territories from Gujarat to Odisha, apart from Lakshadweep and the Andaman and Nicobar Islands.
- Great Seahorse is one of the species of seahorses found in India
- The Great Seahorse is declared 'Vulnerable' as its population is declining due to overexploitation.
- It is used in Chinese medicine as well as for ornamental purposes.
- Destructive fishing methods are also causing damage to the Great Seahorses.
- The species is abundant off the Coromandel coast (Andhra Pradesh and Tamil Nadu)
- The seahorse it is under extensive fishing pressure, with 13 million individuals caught per year.

4. Consider the following statements about the Horseshoe Crab recently seen in the news

1. They are found only in the Indian Ocean.
2. Tamil Nadu has the highest population of the Horseshoe Crab.
3. Their blue blood contains Limulus amebocyte lysate (LAL) which has medicinal significance.

Which of the above statements is true?

- A. 1 & 2 only
- B. 1 & 3 only
- C. 2 & 3 only
- D. 3 only

Answer : D

Explanation



- Scientists raise alarm over the decline in horseshoe crab population along Odisha coast.
- Horseshoe crabs migrate to the coasts of Odisha for breeding.
- However, scientists are now raising the alarm over the declining population of these crabs due to the loss of breeding grounds and environmental degradation.
- The horseshoe crab is a marine chelicerate arthropod living in shallow coastal waters on soft sandy or muddy bottoms.
- Despite their name, they are not true crabs or crustaceans, they are chelicerates, most closely related to arachnids such as spiders, ticks, and scorpions.
- The Horseshoe crabs have been around for over 450 million years.

- Hence they are also called as 'living fossil'
- They are commonly found in shallow ocean waters along the coasts of North America and Asia.
- Horseshoe crabs live up to 20 years or more.

Conservation Status –

India

- Wildlife Protection Act 1972: Schedule IV

IUCN Status

- American horseshoe crab: Vulnerable
- Tri-spine horseshoe crab: Endangered
- Significance of horseshoe crabs
- Horseshoe crabs are one of the oldest living creatures on the planet
- They play a vital role in medical research, especially in the development of vaccines and drugs.
- Their blue blood contains a chemical called Limulus ameocyte lysate (LAL), which is used to detect bacterial endotoxins in medicines and medical devices.
- This chemical has also been used to test for the presence of pathogens in COVID-19 vaccines.
- The conservation of horseshoe crabs is crucial for their ecological significance.
- It is also important for the medical industry.
- The global demand for LAL has been increasing in recent years.
- The horseshoe crab population's decline could have significant implications for medical research.

5. Recently, Barda Wildlife sanctuary was in the news for being in consideration for the second home to Asiatic lions.

It is in which of the following states?

- Rajasthan
- Madhya Pradesh
- Gujarat
- None of the above.

Answer : C

Explanation



- The Gir National Park and Wildlife Sanctuary in Gujarat are known as the last refuge of the Asiatic lion.
- Increased population has caused overcrowding.
- This has prompted the Gujarat government to look for alternative sites for the lions.
- In a recent move, the government has decided to shift 40 lions from Gir to the nearby Barda Wildlife Sanctuary.
- Barda Wildlife Sanctuary is located in Porbandar district of Gujarat, about 100 km west of Gir Forest National Park.
- It covers an area of 192 square kilometers.
- It is a dry deciduous forest with rugged terrain, consisting of hills, plateaus, and valleys.
- Two rivers Bileshvary River and Joghri River flow through the sanctuary.
- The sanctuary is home to a variety of wildlife, including leopards, hyenas, wild boars, and Indian pangolins.

Pre-Mix – 5 MCQs for Prelims**Subject – Environment****Date – 07th April 2023**

1. Arrange the following Tiger reserves from west to east direction:

1. Buxa tiger reserve
2. Palamau tiger reserve
3. Bandipur tiger reserve
4. Kawal tiger reserve

Select the correct answer using the codes given below:

- A. 3 – 4 – 2 – 1
- B. 3 – 4 – 1 – 2
- C. 4 – 3 – 2 – 1
- D. 4 – 3 – 1 – 2

2. Off-grid Renewable Energy can play important role to provide energy to isolated communities and areas.

Which of the following can be used as a part of such system?

1. Biomass gasifiers
2. Micro hydro projects
3. Solar Photo Voltaic Roof-top Systems

Select the correct answer using the code below:

- A. 1 and 2 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. All of the above.

3. Consider the following statements

1. Bi-Fuel means the engine could run on either fuel separately.
2. Dual fuel vehicle means the engine uses two fuels at the same time.
3. FFV is capable of running on either petrol or ethanol or a combination of both.

Which of the above statements is/are correct?

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

4. With reference to the Genetically Modified mustard (GM mustard) developed in India, consider the following statements :

1. GM mustard has the genes of a soil bacterium that give the plant the property of pest-resistance to a wide variety of pests.
2. GM mustard has the genes that allow the plant cross-pollination and hybridization.
3. GM mustard has been developed jointly by the IARI and Punjab Agricultural University.

Which of the statements given above is/are correct?

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

5. Consider the following kinds of organisms:

1. Bat
2. Bee
3. Bird

Which of the above is/are pollinating agent/agents?

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

Answers with Explanations

Click [here](#) to watch the following topics on YouTube.

1. Arrange the following Tiger reserves from west to east direction:

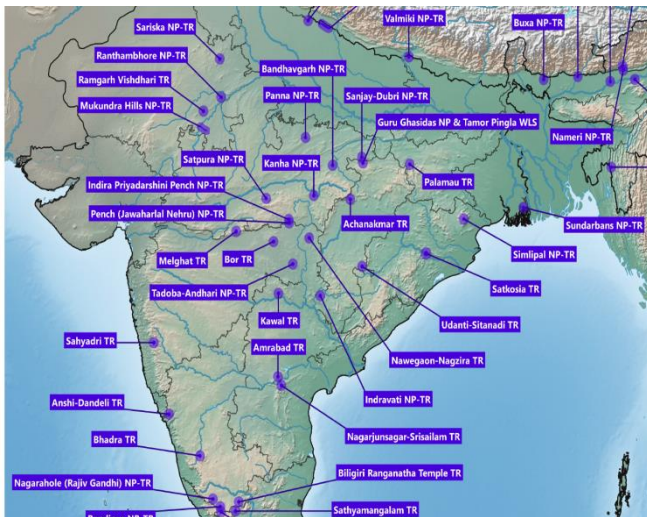
1. Buxa tiger reserve
2. Palamau tiger reserve
3. Bandipur tiger reserve
4. Kawal tiger reserve

Select the correct answer using the codes given below:

- A. 3 - 4 - 2 - 1
- B. 3 - 4 - 1 - 2
- C. 4 - 3 - 2 - 1
- D. 4 - 3 - 1 - 2

Answer : A

Explanation



2. Off-grid Renewable Energy can play important role to provide energy to isolated communities and areas.

Which of the following can be used as a part of such system?

1. Biomass gasifiers
2. Micro hydro projects
3. Solar Photo Voltaic Roof-top Systems

Select the correct answer using the code below:

- A. 1 and 2 only
- B. 2 and 3 only
- C. 1 and 3 only
- D. All of the above.

Answer : D

Explanation

- Distributed/decentralized renewable power projects help to meet the energy requirements of isolated communities and areas which are not likely to be electrified in near future.
- Off-grid Renewable Energy/Power can be generated using the following:
 - Biomass based heat and power projects and industrial waste to-energy projects for meeting captive needs
 - Biomass gasifiers for rural and industrial energy applications
 - Watermills/micro hydro projects - for meeting electricity requirement of remote villages
 - Small Wind Energy & Hybrid Systems - for mechanical and electrical applications, mainly where grid electricity is not available.
 - Solar PV Roof-top Systems for abatement of diesel for power generation in urban areas.

3. Consider the following statements

1. Bi-Fuel means the engine could run on either fuel separately.
2. Dual fuel vehicle means the engine uses two fuels at the same time.
3. FFV is capable of running on either petrol or ethanol or a combination of both.

Which of the above statements is/are correct?

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

Answer : D

Explanation

- A bi-fuel system uses two types of fuel, but the fuels are not mixed together during operation.
- The engine is capable of switching between the two so that it is always using the type of fuel most efficient for the conditions at hand.
- A dual-fuel system is capable of using two types of fuel at the same time in a mixture.
- It usually cranks up on one type of fuel, and the system gradually adds the secondary fuel source until the optimal mixture of the two fuels is achieved for efficient running.
- Flex fuel vehicles (FFV) are capable of running on 100% petrol or 100% bio-ethanol or a combination of both.
- Despite containing less energy than petrol, the calorific value (energy contained in the fuel) of bio-ethanol can be as par with petrol with the help of advanced technology.
- Flex fuel vehicles are affordable in the long term as it has low manufacturing cost but it has less mileage though.
- Flex Fuel Strong Hybrid Electric Vehicles (FFSHEV) essentially houses an electric motor which powers the vehicle alongside the traditional petrol engine.

4. With reference to the Genetically Modified mustard (GM mustard) developed in India, consider the following statements :

1. GM mustard has the genes of a soil bacterium that give the plant the property of pest-resistance to a wide variety of pests.
2. GM mustard has the genes that allow the plant cross-pollination and hybridization.
3. GM mustard has been developed jointly by the IARI and Punjab Agricultural University.

Which of the statements given above is/are correct?

- A. 1 and 3 only

- B. 2 only
C. 2 and 3 only
D. 1, 2 and 3

Answer : B

Explanation

- DMH-11 is a transgenic hybrid mustard.
- Hybridisation involves crossing two genetically dissimilar plant varieties that can even be from the same species. The first-generation (F1) offspring from such crosses tend to have higher yields than what either parent can individually give.

Hybridisation in mustard is not easy as its flowers have both female (pistil) and male (stamen) reproductive organs, making the plants largely self-pollinating

- Since the eggs of one plant cannot be fertilized by the pollen grains from another, it limits the scope for developing hybrids.
- In DMH-11 hybridization has been achieved by genetic modification.
- Scientists at Delhi University's Centre for Genetic Manipulation of Crop Plants (CGMCP) have developed the hybrid mustard DMH-11 containing two alien genes isolated from a soil bacterium called *Bacillus amyloliquefaciens*.
- The technology used for hybridization is called as barnase-barstar GM technology.
- DMH - 11 was created through transgenic technology, primarily involving the Bar, Barnase and Barstar gene system.
- The Barnase gene confers male sterility, while the Barstar gene restores DMH - 11's ability to produce fertile seeds.
- The insertion of the third gene Bar, enables DMH - 11 to produce phosphinothricin-N-acetyl-transferase, the enzyme responsible for Glufosinate resistance.
- Increased Productivity

- Reduced import dependency. Currently, India has a deficit of edible oils by almost 55-60 per cent of the total consumption. In the financial year 2020-21, around 13.35 million tonnes of edible oils were imported at a total cost of around Rs 117,000 crores in foreign exchange.
- The decision to release GM mustard will encourage more research and innovations to reduce the environmental footprints of agriculture, develop climate resilient crops, and thereby assure food and nutritional security of the country.
- It will also accelerate breeding efforts to produce new high yielding disease and pest resistant hybrids using this new technology

The main Criticism Include

- Probability of toxicity of a herbicide tolerant food crop
- Presence of herbicide tolerant gene will make the GM mustard plants tolerant to the spraying of glufosinate ammonium, a weedicide. This will cause displacement of manual labour engaged in weeding by promoting use of chemical herbicides.
- Concern is also raised over GM mustard threatening or undermining the population of honey bees. Mustard flowers are a source of nectar for honey bees and many other pollinator insects.

5. Consider the following kinds of organisms:

1. Bat
2. Bee
3. Bird

Which of the above is/are pollinating agent/agents?

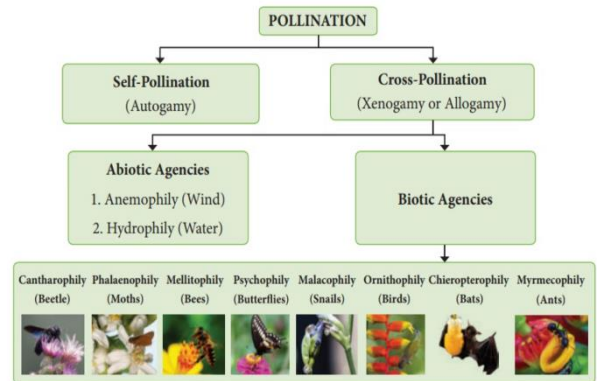
- A. 1 and 2 only
- B. 2 only
- C. 1 and 3 only
- D. 1, 2 and 3

Answer : D

Explanation

Pollination is the process of reproduction in plants.

It is the transfer of pollen from a male part of a plant to a female part of a plant.



Pre-Mix – 5 MCQs for Prelims**Subject – Environment****Date – 13th April 2023****1. Consider the following tiger landscapes.**

1. Shivalik-Gangetic plains
2. Central India and Eastern Ghats
3. Western Ghats
4. Northeastern Hills and Brahmaputra Flood Plains
5. Sundarbans

Arrange the above in the increasing order of tigers found in them:

- A. $5 < 1 < 3 < 4 < 2$
- B. $5 < 1 < 4 < 3 < 2$
- C. $5 < 4 < 1 < 3 < 2$
- D. $5 < 3 < 1 < 4 < 2$

2. Consider the following tiger landscapes.

1. Shivalik-Gangetic plains
2. Central India and Eastern Ghats
3. Western Ghats
4. Northeastern Hills and Brahmaputra Flood Plains
5. Sundarbans

Arrange the above in the decreasing order of their MEE score:

- A. $2 > 3 > 4 > 1 > 5$
- B. $2 > 3 > 4 > 5 > 1$
- C. $2 > 3 > 5 > 1 > 4$
- D. $3 > 2 > 5 > 1 > 4$

3. Consider the following statements regarding Sathyamangalam Tiger Reserve (STR)

1. It is in Kerala.
2. It provides a link between the Eastern Ghats and the Western Ghats.

3. It is one of the tiger reserves to bag the TX2 award.

Which of the above statements is/are correct?

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

4. Consider the following

1. Ramsar site
2. UNESCO World Heritage site
3. Man and Biosphere reserve
4. Tiger Reserve

Which of the above tags has been endowed upon Sundarbans in India?

- A. 1, 2 and 4 only
- B. 1, 2 and 3 only
- C. 3 and 4 only
- D. All of the above.

5. "There cannot be a forest without tigers; and the tigers cannot live without a forest. The forest is protected by the tigers; and the tigers are protected by the forest."

The above quote has been taken from which of the following ancient texts?

- A. Upanishads
- B. Vedas
- C. Mahabharata
- D. Puranas

Answers with Explanations

Click [here](#) to watch the following topics on YouTube.

1. Consider the following tiger landscapes.

1. Shivalik-Gangetic plains
2. Central India and Eastern Ghats
3. Western Ghats

4. Northeastern Hills and Brahmaputra Flood Plains
5. Sundarbans

Arrange the above in the increasing order of tigers found in them:

- A. 5<1<3<4<2
- B. 5<1<4<3<2
- C. 5<4<1<3<2
- D. 5<3<1<4<2

Answer : C

Explanation

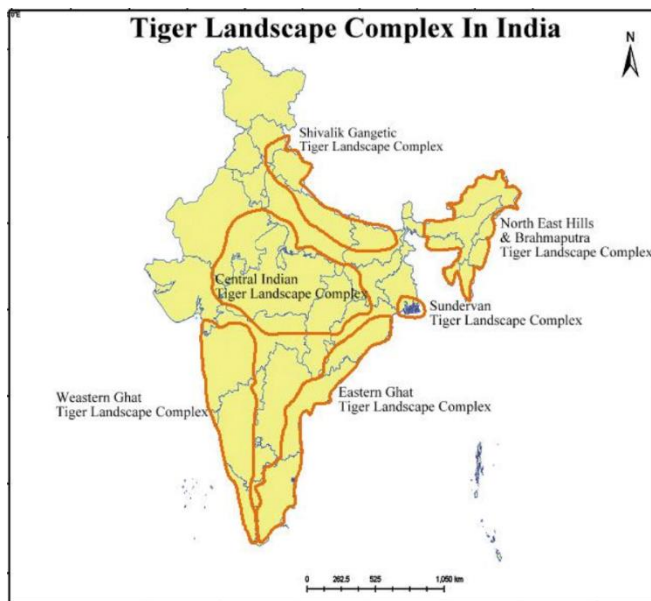


Table 2: Unique tiger individuals photo captured in each landscape

Landscape	Camera Trapped Tigers	
	2022	2018
Shivalik Hills & Gangetic Plains Landscape	804	646 (567-726)
Central Indian Highlands & Eastern Ghats Landscape	1,161	1,033 (885-1,193)
Western Ghats Landscape	824	981 (871-1,093)
North Eastern Hills & Brahmaputra Plains Landscape	194	219 (194-244)
Sunderbans Landscape	100	88 (86-90)
India	3,080*	2,967 (2,603-3,346)

*Ranipur (Uttar Pradesh) is added in Shivalik landscape for convenience. Three tigers were common between Ranipur & Madhya Pradesh (Central Indian landscape), hence 3 tigers were subtracted from the Total addition of all landscapes.

2. Consider the following tiger landscapes.

1. Shivalik-Gangetic plains

2. Central India and Eastern Ghats
3. Western Ghats
4. Northeastern Hills and Brahmaputra Flood Plains
5. Sundarbans

Arrange the above in the decreasing order of their MEE score:

- A. 2>3>4>1>5
- B. 2>3>4>5>1
- C. 2>3>5>1>4
- D. 3>2>5>1>4

Answer : D

Explanation

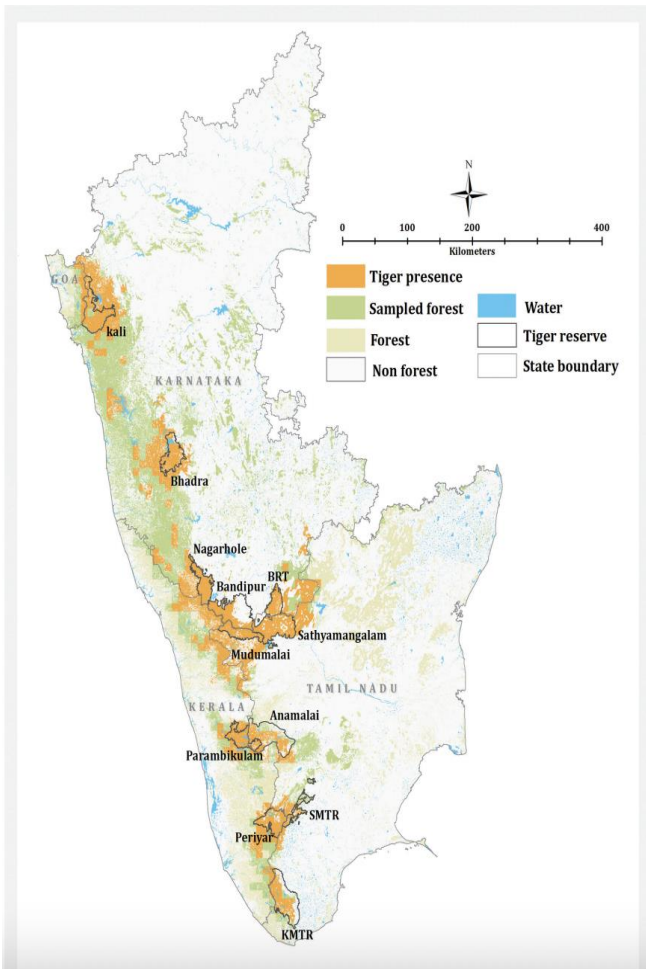
Table 4: Landscape clusters and MEE scores

Landscape	Name of Tiger Reserves	Number of Tiger Reserves	Mean MEE Score (%)	Ratings
Shivalik Gangetic Plain Landscape	Corbett, Rajaji, Dudhwa, Pilibhit, Valmiki	5	74.7	Very Good- 3; Good- 2
Central Indian and Eastern Ghats Landscape	Satpura, Kanha, Pench (MH), Simlipal, Pench (MP), Tadoba-Andhari, Melghat, Navegaon-Nagzira, Bandhavgarh, Panna, NSTR, Amrabad, Sahyadri, Bor, Satkosia, Kawal, Ranthambhore, Sanjay -Dubri, Achanakmar, Palamau, Sariska, Mukundara Hills, Udanti-Sitanadi, Indravati	24	77.54	Excellent - 4 Very Good- 11; Good- 7; Fair- 2
Western Ghats	Kali, Parambikulam, Periyar, Anamalai, KMTR, Bhadra, Nagarhole, Bandipur, Mudumalai, Sathyamangalam, SMTR, BRT Hills	12	87.32	Excellent - 8 Very Good- 3; Good- 1
Northeastern Hills and Brahmaputra Landscape	Sundarbans, Manas, Buxa, Orang, Dampa, Kaziranga, Nameri, Pakke, Namdapha, Kamlang	9	68.43	Very Good- 2; Good- 4 Fair- 3
Sundarbans Landscape	Sundarban	1	75.76	Very Good-1
		51 TRs		

Management Effectiveness Evaluation (MEE) of Tiger Reserves

- Periyar in Kerala (MEE score 94.38%),
- Satpura in Madhya Pradesh and Bandipur in Karnataka (MEE score 93.18%), and

- Nagarhole in Karnataka (MEE score 92.42%) reported top three MEE score in 2022 cycle.



- It is one of the tiger reserves to bag the TX2 award.

Which of the above statements is/are correct?

- 1 and 2 only
- 2 only
- 2 and 3 only
- 3 only

Answer : C

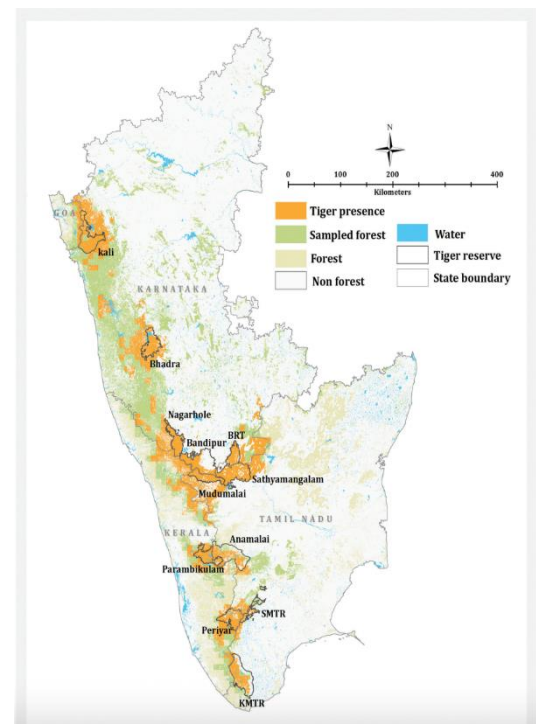
Explanation

- It is located in the confluence region of the Western and Eastern Ghats in Tamil Nadu.
- The Sathyamangalam forests link the Eastern Ghats and Western Ghats allowing gene flow between diverse fauna populations of the two eco-regions.
- This area holds a significant population of tigers, and it is also contiguous to other Tiger conservation landscapes like BRT, Bandipur, Mudumalai and Nagarhole.
- Sathyamangalam Tiger Reserve (STR) in Erode district has been given the prestigious TX2 award after its tiger numbers doubled to 80 since 2010.

- | | |
|-----|-----|
| • C | • W |
| • W | • C |
| • S | • S |
| • N | • S |
| • S | • N |

3. Consider the following statements regarding Sathyamangalam Tiger Reserve (STR)

- It is in Kerala.
- It provides a link between the Eastern Ghats and the Western Ghats.



Tiger reserves in TN	
Name	Area (In hectares)
Mudumalai	32,100
Kalakad Mundanthurai	70,654
Anamalai	95,859
Satyamangalam	79,349
Srivilliputhur-Megamalai	1,01,657.13

Other TRs to bag TX2 Award



- Pench Tiger Reserve – Maharashtra
- Pench Tiger Reserve – MP
- Satpura Tiger Reserve – MP
- Pilibhit Tiger Reserve - Uttar Pradesh
- The TX2 Awards are given for doubling the tiger population.
- These awards are supported by Conservation Assured I Tiger Standards (CA|TS), Fauna & Flora International, Global Tiger Forum (GTF), IUCN, Panthera, UNDP, Wildlife Conservation Society (WCS), and WWF.

4. Consider the following

1. Ramsar site
2. UNESCO World Heritage site
3. Man and Biosphere reserve
4. Tiger Reserve

Which of the above tags has been endowed upon Sundarbans in India?

- A. 1, 2 and 4 only
- B. 1, 2 and 3 only
- C. 3 and 4 only
- D. All of the above.

Answer : D

Explanation

- The Sundarbans comprises hundreds of islands and a network of rivers, tributaries and creeks in the delta of the Ganga and the Brahmaputra at the mouth of the Bay of Bengal in India and Bangladesh.
- Indian Sundarbans constitute over 60% of the country's total mangrove forest area.
- It is the 27th Ramsar Site in India.
- The Indian Sundarbans, is also a UNESCO world heritage site.
- Sunderbans was designated as a Biosphere Reserve by UNESCO in 2001.
- India's Sundarbans National Park is among five sites that have the highest blue carbon stocks globally.
- Critically endangered northern river terrapin (Batagur baska), the endangered Irrawaddy dolphin (Orcaella brevirostris), and the vulnerable fishing cat (Prionailurus viverrinus).

5. "There cannot be a forest without tigers; and the tigers cannot live without a forest. The forest is protected by the tigers; and the tigers are protected by the forest."

The above quote has been taken from which of the following ancient texts?

- A. Upanishads
- B. Vedas
- C. Mahabharata
- D. Puranas

Answer : C

Explanation

"There cannot be a forest without tigers; and the tigers cannot live without a forest. The forest is protected by the tigers; and the tigers are protected by the forest."

(Mahabharata, Udyogaparvan, 29:47-48)