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Daily MCQs: 11-03-2024

1. Consider the following statements about Methane.

1. Major natural sources of methane include emissions from wetlands and oceans, and from the digestive processes of termites.
2. Methane's lifetime in the atmosphere is much shorter and less efficient at trapping radiation than carbon dioxide.
3. Methane contributes to the formation of ground-level ozone.

How many of the statements given above are correct?

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

2. Which of the following have been flagged as causes for the decline in the number of pollinators by the Food and Agriculture Organisation?

1. Land-use change and fragmentation
2. Growth of invasive alien species
3. Cultivation of Genetically Modified Organisms
4. Mono-cropping

Select the correct answer using the codes given below

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

3. Consider the following statements about the Pradhan Mantri Kisan Maan Dhan Yojana.

1. It is a pension scheme which is open to all farmers irrespective of land holdings.
2. Under the scheme, the Government of India contributes the same amount that the farmer pays to the pension fund.

Which of the statements given above is/are correct?

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

4. Togalu Gombeyata is a puppet show unique to the state of?

- A. Andhra Pradesh

- B. Tamil Nadu
- C. Kerala
- D. Karnataka

5. The Kuno National Park is located in the state of

- A. Gujarat
- B. Karnataka
- C. Madhya Pradesh
- D. Maharashtra

Solutions:

1. Answer: **B**

Explanation:

- Methane (CH₄) is the simplest hydrocarbon, consisting of one carbon atom and four hydrogen atoms.
- **Statement 1 is correct:** It is produced by **both natural processes and human activities**. Major natural sources of methane include **emissions from wetlands and oceans, and from the digestive processes of termites**.
- Methane is emitted during the **production and transport of coal, natural gas, and oil**. Methane emissions also result from **livestock and other agricultural practices, land use and by the decay of organic waste in municipal solid waste landfills**.
- Globally, 50-65 percent of total CH₄ emissions come from **human activities**.
- Although the concentration of methane in Earth's atmosphere is small (around 1.8 parts per million), it is an important greenhouse gas because it is such a **potent heat absorber**.
- **Statement 2 is incorrect:** Methane's lifetime in the atmosphere is **much shorter** than carbon dioxide (CO₂), but CH₄ is **more efficient at trapping radiation** than CO₂ (almost 25 times more potent than CO₂).
- **Statement 3 is correct:** Methane contributes to the formation of **ground-level ozone**, a dangerous air pollutant.

2. Answer: **D**

Explanation:

- Pollination is the **act of transferring pollens** from the male sex organ of the flower, the anther, to the female organ, the stigma.
- Plants can be:
 - **Self-pollinating** - the plant can fertilize itself; or,
 - **Cross-pollinating** - the plant needs a vector (a pollinator or the wind) to get the pollen to another flower of the same species.
- The **vectors that help transfer** of pollen like insects, birds, animals, and in some cases, even wind and water are the **pollinators or pollinating agents**. They are of two types

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- **Invertebrate pollinators:** Include bees, moths, flies, wasps, beetles and butterflies.
- **Vertebrate pollinators:** Include monkeys, rodents, lemurs, tree squirrels and birds.
- There are an estimated 120,000-200,000 invertebrate and vertebrate species that act as pollinators.

Significance of Pollinators

- More than 180,000 plant species, including 1,200 crop varieties, across the world depend on pollinators to reproduce.
- They are crucial for maintaining **plant biodiversity and boosting crop production**.
- Pollinators consequently play a key role in regulating ecosystem services supporting food production, habitats and natural resources.

FAO's Findings

- Around 40% of invertebrate pollinator species, particularly bees and butterflies, face extinction across the world according to the **Food and Agriculture Organisation (FAO)**.
- In India, wild honeybees of the genus *Apis*, including the Asian bee and the little bee, have declined steadily for the past 30 years.
- Around 16.5% of vertebrate pollinators are threatened with extinction.
 - Of these, 45 species of bats, 36 species of non-flying mammals, 26 species of hummingbirds, seven species of sunbirds and 70 species of passerine birds face extinction.

Causes for decline

- There are several causes for the decline in the number of pollinators. Most of them are the result of an increase in human activities:
 - Land-use change and fragmentation
 - Changes in agricultural practices including use of chemical pesticides, fungicides and insecticides
 - Change in the cropping pattern and crops like the cultivation of Genetically Modified Organisms (GMOs) and mono-cropping
 - High environmental pollution from heavy metals and nitrogen
 - Growth of invasive alien species.

Way forward

- **Strong conservation measures for endangered pollinators** is a move that has to be taken to arrest pollinator decline.
- Conservation measures for bees, for instance, have to be **implemented as widely as possible** and there is a need to protect the pollinators by **enacting laws** that forbid all activities that might affect them.
 - Eg: Poland has enacted a law in 1990 protecting some 443 species of insects including the native bees.
- Conservation moves should also include **careful studies of the effects of pesticides** on pollinators and on their habitat and those that are found dangerous for pollinators.
- **Migratory routes and nectar corridors** of the pollinators should be protected.

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- Authorities should carefully assess the threat from any development project that has been sanctioned.
- **Nature reserves designed specially with plant-pollinator relationships** in mind can be an important step towards arresting pollinator decline.
- More **research on pollinators** and the decline in their populations should be encouraged by governments worldwide.

3. Answer: B

Explanation:

- Pradhan Mantri Kisan Maan Dhan Yojana is a **pension scheme** which offers a **guaranteed income to farmers in their old age**.
- Launched in 2019, it is a **Central Sector Scheme** under the **Ministry of Agriculture and Farmers' Welfare**.
- It is voluntary and contributory in nature and it entitles the beneficiary a **monthly pension of Rs 3,000 on attaining the age of 60 years**.
- **Eligibility:** The scheme is open to small and marginal farmers **owning less than two ha land in the age group of 18-40 years**. Hence, **statement 1 is incorrect**.
- **Statement 2 is correct:** Farmers will have to make a monthly contribution between **Rs 55 and Rs 200**, depending on the age of entry. The **Centre will contribute the same amount that the farmer pays**.
- The pension fund will be managed by the **Life Insurance Corporation of India**.
- Farmers, who are beneficiaries of the **PM-KISAN Scheme**, will have the option to allow their contribution be debited from the benefit of that Scheme directly.
- **Note:** While PM KISAN scheme, which provides an income support of Rs.6000/- per year, is open to all farmers irrespective of land holdings, PM Kisan Maan Dhan Yojana is for farmers owning less than **two** ha land.

4. Answer: D

Explanation:

Types of Puppetry in India Glove Puppets

- The puppets are worn on the hand of the puppeteers like gloves.
 - Pavakkoothu – Kerala

String Puppets

- Strings are attached to small holes in the hands, head and back of the body which are then controlled by the puppeteer.
 - Gopalila Kundhei – Orissa
 - Bommallattam – Tamil Nadu
 - Kalasutri Bahulya – Maharashtra
 - Putola Nach – Assam

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- Kathputli – Rajasthan
- Gombeyatta – Karnataka

Shadow Puppets

- Puppets are placed on a white screen with light falling from behind to create a shadow effect on the screen.
 - Thol Bommalattam – Tamil Nadu
 - **Togalu Gombeyata – Karnataka**
 - Chamadyache Bahulya – Maharashtra
 - Tholpavakoothu – Kerala
 - Ravanachhaya – Orissa
 - Tholu Bommalata – Andhra Pradesh

Rod Puppets

- A rod puppet is a figure operated from beneath by means of wooden or metal rods.
 - Kathi Kandhe – Orissa
 - Putul Nach – West Bengal
 - Yampuri – Bihar

5. Answer: C

Explanation:

- Kuno National Park is located in **Madhya Pradesh**. Earlier it was a wildlife sanctuary but in 2018 it was given national park status.
- The **Kuno river** flows through the national park.
- Bio-Geographically this area falls under the **Kathiawar-Gir dry deciduous forest ecoregion** and the forest types found in this area include the Northern tropical dry deciduous forest, Southern tropical dry deciduous forest, Dry Savannah forest & grassland and Tropical riverine forest.
- The main predators in the protected area are Indian leopard, jungle cat, sloth bear, dhole, Indian wolf, golden jackal, striped hyena and Bengal fox.
- In the 1990s, it was selected as a possible site to implement the **Asiatic Lion Reintroduction Project**, which aimed at establishing a second lion population in India, apart from **Gir National Park in Gujarat**.