



**UPSC
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DAILY CURRENT AFFAIRS

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SOURCES



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GS III

1. The controversy over eucalyptus planting in Kerala

Source: The Hindu, Page 10

Prelims: Eucalyptus, Eco-restoration.

Mains: Conservation, Environmental Pollution and Degradation

News: The Kerala government allowed the Kerala Forest Development Corporation (KFDC) to plant eucalyptus trees for financial support. Environmentalists protested, highlighting potential negative impacts on forests and increased human-animal conflicts. On May 20, the government amended the order to limit permission to cutting exotic tree species from KFDC-controlled lands.

KFDC Plantations

- The KFDC was established on January 24, 1975, as a dynamic production forestry enterprise.
- KFDC manages around 7,000 hectares of plantations with species such as Eucalyptus grandis, Acacia auriculiformis, Acacia mangium, Acacia crassicarpa, Acacia pycnantha (wattle), Alnus nepalensis, Casuarina equisetifolia, and Pinus patula.
- Plantations have specific rotation ages: eucalyptus (9 years), Acacia auriculiformis (18 years), Acacia mangium (7 years).
- Plantations approved by the Union Ministry of Environment, Forests, and Climate Change are felled at the end of each cycle and replanted with species listed in a management plan.

Invasive vs Indigenous Plantations

- KFDC plans to convert plantations of exotic species, including eucalyptus, to indigenous species after felling to be more ecologically friendly.
- The 2021 eco-restoration policy addressed the "proliferation of invasive species" that deplete natural forests and force wildlife into human areas, increasing human-animal conflicts.
- Replacing exotic plants with natural species can ensure food for wildlife, such as elephants in the Chinnakanal area, which is currently dominated by eucalyptus.

Eco-restoration

- Eco-restoration involves removing invasive species and allowing natural vegetation to flourish.
- Kerala has about 27,000 hectares under industrial plantations.
- The government plans to phase out eucalyptus, acacia, wattle, and pine plantations by 2024, replacing them with natural forests to mitigate climate change.
- A successful example is the 2019 project in the Marayoor Sandal Division in Idukki, where 108 hectares of exotic species were removed, leading to the restoration of water streams after 30 years.



2. Why dal imports have surged

Source: IE, Page 17

Prelims: Facts and Data

Mains: Food Processing and Related Industries in India

News: In April 2024, the retail inflation for pulses was 16.84% in April 2024, affecting lower-income households significantly. Example

- The average price of chana rose from Rs 70 to Rs 85 per kg, arhar/tur from Rs 120 to Rs 160 per kg, urad from Rs 110 to Rs 120 per kg, and masoor from Rs 90 to Rs 100 per kg.

Decline in Domestic Production

- **Reasons:** The El Niño effect caused erratic monsoon and winter rains, reducing pulses production from 27.30 million tonnes (mt) in 2021-22 to 23.44 mt in 2023-24.
- **Specific Crops:** Chana production decreased from 13.54 mt in 2021-22 to below 10 mt in 2023-24, and arhar/tur production dropped below 3 mt.
- **Market Prices:** Poor crop yields led to higher market prices, with chana trading at Rs 6,500 per quintal and arhar/tur at Rs 12,000 per quintal, above the government-declared minimum support prices.

Implications

- **Surge in Imports:** India's pulses imports reached \$3.75 billion in 2023-24, marking a reversal from previous self-sufficiency.
- **Government Measures:** The government lifted tariffs and quantitative restrictions on most imports to curb inflation.
- **Consumer Impact:** The increased prices of pulses have hit low-income households hard, as these are not widely available through the public distribution system.

Road Ahead

- **Monsoon Dependence:** Future dal inflation will depend on the southwest monsoon, with predictions of a shift to a "neutral" or La Niña phase, which could bring good rainfall.
- **Import Necessity:** Due to poor domestic supply, higher imports will be necessary. The government has allowed duty-free imports of several pulses until March 31, 2025.
- **Substitutes:** Matar and masoor dal are becoming popular substitutes for chana and arhar/tur, with potential increases in their imports from countries like Canada, Australia, and Russia.

3. Rising 'heat stress' in six metros as humidity up, nights warmer: Study

Source: IE, Page 14

Prelims: Urban Heat Island Effect

Mains: Disaster and Disaster Management

News: The article discusses the increasing "heat stress" in India's megacities due to rising relative humidity and higher nighttime temperatures.



Heat Stress in Megacities

- Affected Cities: Delhi, Mumbai, Chennai, Bengaluru, Kolkata, and Hyderabad.
- Causes: Rising relative humidity over the past two decades and warmer nights.
- Heat Index: Measure of discomfort due to high heat and humidity, contributing to increased heat stress.

Urban Heat Island Effect

- Definition: Heat trapped due to increased built-up areas, reduced green cover, congestion, urban structures absorbing heat, and human activities.
- Impact: Central parts of megacities are warmer than outskirts, especially at night.
- Consequences: People have less recovery time from daytime heat, leading to health risks.

Rising Humidity and Health Impact

- Humidity Increase: Significant rise in average relative humidity during summers, particularly in Hyderabad (10% increase).
- Health Risks: High heat and humidity compromise the body's cooling mechanism (sweating), leading to sickness and potential fatalities even at lower temperatures.
- City-specific Examples:
 - Delhi: Built-up area increased from 31.4% (2003) to 38.2% (2022), increasing urban heat stress.
 - Monsoon Period: Higher heat index during monsoon than pre-monsoon in most cities; marginal cooling in Chennai during monsoon has disappeared.

Mitigation Strategies and Recommendations

- Comprehensive Heat Management Plan:
 - Develop emergency measures during heatwaves.
 - Long-term strategies to mitigate heat: Increase green areas and waterbodies, Improve thermal comfort in buildings, Reduce waste heat from vehicles, air conditioners, and industries.
- Need for Assessment: Continuous monitoring of heat trends is necessary for effective management and mitigation of urban heat stress.



Editorials, Opinions and Ideas

4. A matter of backwardness

Source: IE, Page 13

In this Article, the author discusses the complexities and controversies surrounding reservation policies in India, particularly for Muslim backward castes (pasmanda Muslims).

West Bengal Case

- The West Bengal case involved the inclusion of Muslim castes in the Backward Class category through executive orders, which the High Court struck down on several grounds:
 - Lack of consultation with the West Bengal Backward Class Commission.
 - Absence of a comprehensive empirical survey.
 - Inadequate examination of representation in state services.
- The High Court's stringent scrutiny of the Commission's procedures exceeded typical judicial review standards.
- The Court's rejection of the Sachar Committee's findings and its interpretation of reservation policies was controversial and inconsistent with past practices.

Broader Implications and Controversies

- Historically, The judiciary generally does not support reservation policies and has introduced measures like the exclusion of the "creamy layer" (Indra Sawhney, 1992) and a 50% upper limit on reservations (MR Balaji, 1963).
- Courts have been more stringent with Muslim backward classes, applying a stricter scrutiny test in evaluating these policies.
- The judgement did not account for the fact that many Muslim castes had been recognized as backward by the Mandal Commission and the central government.
- The judgement overlooked the historical and social context of caste and conversion, ignoring the backwardness of Muslim castes who converted from Scheduled Castes.
- The Court's approach contrasted with its leniency towards non-Muslim castes, raising questions about consistency and fairness in applying reservation criteria.

Constitutional Promises and Political Motivations

- The Indian Constitution aims for social justice and allows special provisions for the underprivileged to achieve equality.
- Reservation policies often arise from electoral motives rather than purely constitutional promises.
- "Appeasement" accusations are primarily directed at reservations for Muslim backward castes, not other communities like Patidars, Gujjars, Jats, Marathas, or EWS groups.

The author argues for equitable treatment of backward Muslim castes in reservation policies, emphasising that reservations should be based on socio-economic backwardness rather than religion. The need for a consistent and fair approach in judicial scrutiny of reservation policies is highlighted, along with the importance of empirical evidence and proper procedural adherence in policy formulation.



5. Day after Cyclone Remal

Source: IE, Page 13

In this article, the author highlights the unpredictability and destructive power of natural disasters, such as cyclones, floods, and earthquakes. These events are exacerbated by climate change and flawed human lifestyles, leading to rising sea levels and frequent calamities.

Causes and Effects of Natural Disasters

- **Climate Change:** Rising global temperatures, partly due to modern lifestyles, negatively impact the climate, causing sea levels to rise and increasing the frequency of floods and other natural disasters.
- **Impact on Cities:** Scientists warn that cities like London, New York, Chennai, and Bangkok could be submerged if the current trend continues.

Case Studies of Natural Disasters

1. United States:

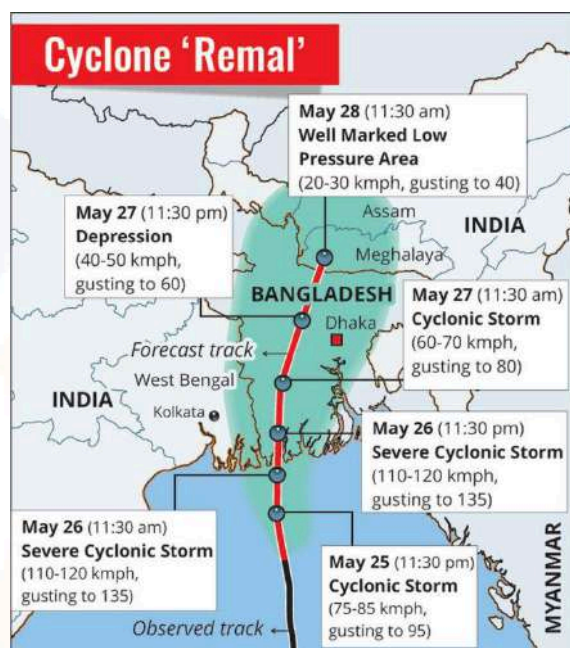
- **Hurricanes and Floods:** The Mississippi River region frequently experiences hurricanes and floods, with Hurricane Katrina in 2005 submerging 85% of New Orleans.
- **Action:** A crucial decision to use dynamite to redirect the river prevented massive destruction, despite opposition from residents.

2. Japan:

- **Earthquakes:** Japan faces frequent earthquakes, accounting for nearly 20% of all magnitude 6 and above earthquakes worldwide. 1923 Great Kanto Earthquake: Devastated Tokyo and Yokohama, causing over 140,000 deaths and massive destruction.
- **Action:** Post-1923, Japan developed quake-resistant infrastructure, including reservoirs and storehouses to sustain the population during emergencies.

3. Mexico:

- **1985 Earthquake:** The earthquake's impact was felt as far as Houston, USA.
- **Action:** Trained dogs played a crucial role in rescue operations, highlighting the limitations of human efforts alone.



Challenges in Predicting Natural Disasters

- **Earthquake Prediction:** Despite advanced technology and programs like the Parkfield Prediction Experiment in the US, predicting earthquakes remains unreliable.
- **Global Vulnerability:** Countries like China, Pakistan, and India have experienced significant loss of life and property due to unpredictable natural disasters.

The author emphasizes that despite technological advancements, humanity cannot predict all natural disasters. The rising frequency and severity of these events should serve as a wake-up call to address climate change and improve disaster preparedness.



InBrief

6. Foundation stone of Centre for Carbon Fiber and Prepregs in Bengaluru

Source: PIB

Recently, the Vice President laid the foundation stone of Centre for Carbon Fiber and Prepregs in Bengaluru.

Carbon Fibre

- It is a material consisting of thin, strong crystalline filaments of carbon, essentially carbon atoms bonded together in long chains.
- **Properties**
 - It has a high stiffness and stiffness-to-weight ratio.
 - It has high tensile strength and strength-to-weight ratio.
 - It has high-temperature tolerance with special resins.
 - It consists of low thermal expansion.
 - It also has high chemical resistance.
 - The fibers are extremely stiff, strong, and light, and are used in many processes to create excellent structural materials.
- Currently, India does not produce any carbon fibre, relying entirely on imports from countries such as the US, France, Japan and Germany.
- **Applications**
 - It is essential for various applications such as fighter planes' noses, civilian airplanes, drone frames, car chassis and fire-resistant building material.
 - It is a critical material in technical textiles and is known for its high strength and lightweight properties.

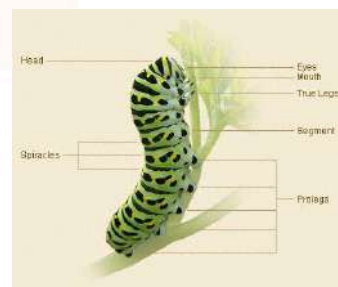
7. Caterpillars may sense threats using electric fields

Source: The Hindu, Page 7

Recently, British researchers have discovered an extra sensing capability in laboratory experiments.

Caterpillars

- Caterpillars are the larval stage of members of the order Lepidoptera.
- Caterpillars have a sixth sense that most land-based animals do not.
- They can sense electric fields around them with small bristles called setae on its body — a feat called electroreception.



8. Russia to build Central Asia's 1st nuclear plant

Source: IE, Page 2

Russia will build a small nuclear power plant in Uzbekistan, the first such project in post-Soviet Central Asia.

Central Asia

- The Central Asia Region stretches from the Caspian Sea in the west to China in the east, and from Afghanistan in the south to Russia in the north.
- It includes five countries namely Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan which are collectively referred to as the Central Asian Republics (CARs).
- They attained independence on the disintegration of the Soviet Union in 1991.
- Central Asia is rich in energy resources, including oil, coal, and natural gas. Kazakhstan is the largest producer of uranium.



9. How tiny satellites will track heat loss from Earth's poles

Source: IE, Page 17

On May 25, NASA launched the first of two climate satellites as part of the PREFIRE mission.

NASA's PREFIRE Mission

- PREFIRE (Polar Radiant Energy in the Far-Infrared Experiment), is a collaborative effort between NASA and the University of Wisconsin-Madison. The mission aims to study heat emissions at the Earth's poles.
- It uses CubeSats. CubeSats are miniature satellites with a standard size of 10 cm x 10 cm x 10 cm, known as "1U."
- They typically weigh no more than 1.33 kg.
- Depending on the mission requirements, CubeSats can be built in different sizes such as 1.5, 2, 3, 6, or 12 units (U).



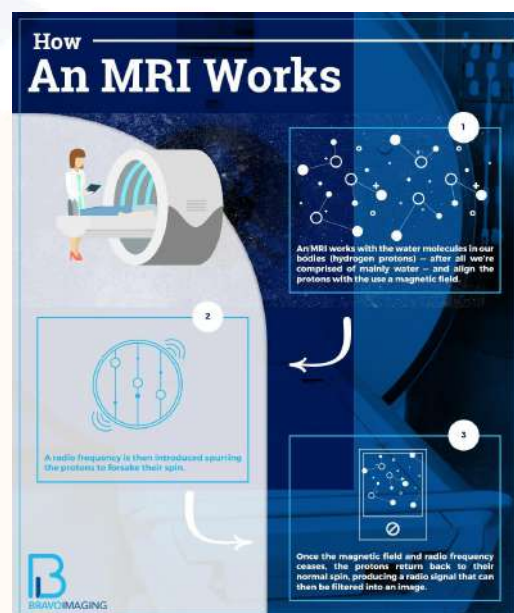
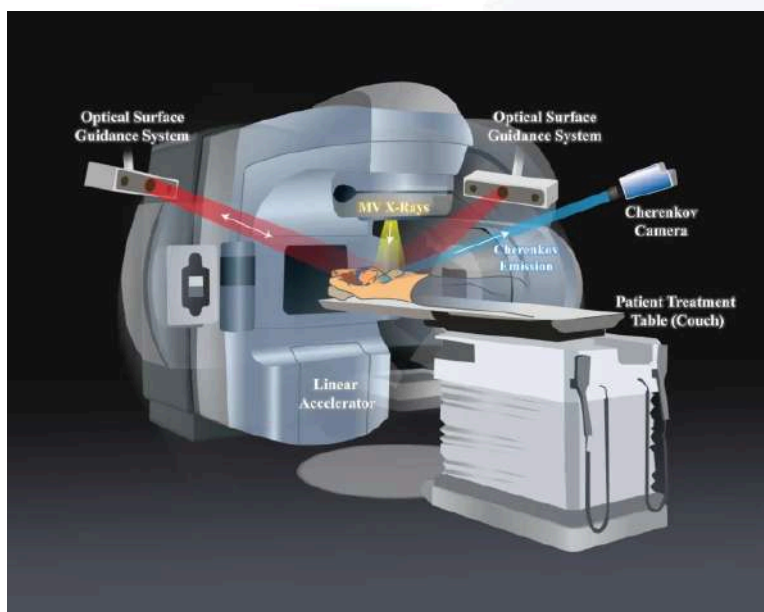
10. SAMEER exchanges MoU on MRI and technology transfer of Linear Accelerator with MeitY

Source: PIB

The Ministry of Electronics and Information Technology (MeitY) has spearheaded the development of two critical healthcare technologies, namely the 1.5 Tesla MRI scanner and 6 MEV Linear Accelerator, through the Society for Applied Microwave Electronics Engineering & Research (SAMEER), Mumbai.

MRI and Linear Accelerator

- The MRI scanner is a non-invasive medical imaging test used to visualize soft tissues, while the Linear Accelerator (LINAC) is utilized for cancer treatment using high-energy X-rays or electrons.



Daily Quiz

1. Consider the following statements regarding eco-restoration:

1. Eco-restoration aims to return degraded ecosystems to their original condition.
2. It often involves reforestation and soil conservation techniques.
3. Eco-restoration solely focuses on the restoration of plant species.
4. Community participation is a crucial element in successful eco-restoration projects.

Which of the statements given above are correct?

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

2. Which of the following factors contributed to the significant rise in retail inflation for pulses in April 2024?

1. A decrease in domestic production due to the El Niño effect causing erratic monsoon and winter rains.
2. Increased government subsidies on pulse crops leading to higher market prices.
3. Improved agricultural practices resulting in higher yields of pulse crops.
4. Decline in global demand for Indian pulses resulting in oversupply in the domestic market.

Select the correct option using the code given below:

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

3. The Urban Heat Island (UHI) effect is a well-documented phenomenon in rapidly urbanising areas. Which of the following factors contribute to the UHI effect?

- A. Increased vegetation cover within the city limits, leading to higher evapotranspiration rates.
- B. Widespread use of reflective materials for buildings and pavements, reducing heat absorption.
- C. Replacement of natural surfaces with dark, heat-absorbing materials like asphalt and concrete.
- D. A prevalence of water bodies within the city, promoting evaporative cooling.

4. The Indra Sawhney case is a landmark judgement in Indian constitutional law. Which of the following statements about the Indra Sawhney case is not correct?

- A. The Supreme Court upheld the 27% reservation for Other Backward Classes (OBCs) in central government jobs.
- B. The judgement introduced the concept of the "creamy layer" and excluded it from the reservation benefits.
- C. The ruling stated that reservations could not exceed 50% of the total seats in any given sector.
- D. The decision allowed for reservations in promotions for OBCs in central government services.



5. The Bay of Bengal is notorious for tropical cyclones. Which of the following statements about the conditions necessary for a tropical cyclone to form in the Bay of Bengal is least likely to be true?

- A. A warm sea surface temperature (SST) exceeding 26°C in the upper layer.
- B. Low pressure system or existing weather disturbance providing a "seed" for development.
- C. Strong Coriolis force to provide the necessary rotation for a cyclonic system.
- D. High relative humidity in the lower and middle troposphere, supporting condensation and storm development.

6. Which of the following statements accurately describes carbon fiber?

- 1. Carbon fiber is a synthetic material made from carbon atoms.
- 2. It is primarily used in the construction of lightweight aircraft and spacecraft.
- 3. Carbon fiber has a high strength-to-weight ratio and is known for its durability.
- 4. It is a natural fiber obtained from plants like jute and bamboo.

Select the correct option using the code given below:

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

7. Which of the following animals possesses the ability to sense electric fields around them using small bristles on their body, a phenomenon known as electroreception?

- A. Gecko
- B. Moth
- C. Caterpillar
- D. Snake

8. Central Asia is a landlocked region bordered by Russia to the north, China to the east, and Iran and Afghanistan to the south. Which of the following nations borders both Afghanistan and Iran?

- A. Kazakhstan
- B. Kyrgyzstan
- C. Tajikistan
- D. Turkmenistan

9. NASA's recently launched PREFIRE mission focuses on studying Earth's climate system.

What is the primary objective of the PREFIRE mission?

- A. To measure global greenhouse gas concentrations with high precision.
- B. To map global ocean currents and their impact on climate.
- C. To study the role of far-infrared radiation in Earth's energy balance, particularly at the poles.
- D. To monitor changes in global ice sheet coverage and their contribution to sea level rise.



10. Which of the following statements accurately describes the use of MRI (Magnetic Resonance Imaging) and Linear Accelerator in the medical field?

1. MRI is primarily used for generating detailed images of the inside of the body using strong magnetic fields and radio waves, aiding in the diagnosis of various conditions.
2. Linear Accelerator is commonly used for producing high-energy X-rays or electrons to treat cancer by targeting and destroying cancerous cells with precision.

3. MRI is suitable for real-time monitoring and guidance during radiation therapy sessions.
4. Linear Accelerator can be used to perform non-invasive imaging scans for detecting neurological disorders such as Alzheimer's disease.

Select the correct option using the code given below:

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

Solutions

Answer 1: C

Solutions:

- Statement 1 is correct: Eco-restoration aims to return degraded ecosystems to their original condition by restoring ecological integrity and functions.
- Statement 2 is correct: Eco-restoration often involves techniques such as reforestation, soil conservation, and water management to restore ecological balance.
- Statement 3 is incorrect: Eco-restoration does not solely focus on the restoration of plant species; it also includes the recovery of wildlife, water bodies, and overall ecosystem functions.
- Statement 4 is correct: Community participation is a crucial element in successful eco-restoration projects, as local involvement ensures sustainability and effectiveness.

Hence, Option C is correct.

Answer 2: A

Solutions:

- Statement 1 is correct: The decrease in domestic production due to the El Niño effect causing erratic monsoon and winter rains contributed to the rise in retail inflation for pulses.
- Statement 2 is incorrect: Increased government subsidies would likely lower market prices, not contribute to higher prices.
- Statement 3 is incorrect: Improved agricultural practices leading to higher yields would mitigate the rise in retail inflation, not contribute to it.
- Statement 4 is incorrect: A decline in global demand for Indian pulses resulting in oversupply would likely lower market prices, not contribute to higher inflation.

Hence, Option A is correct.



Answer 3:

Solutions:

- "Urban heat islands" occur when cities replace natural land cover with dense concentrations of pavement, buildings, and other surfaces that absorb and retain heat. This effect increases energy costs (e.g., for air conditioning), air pollution levels, and heat-related illness and mortality.

Hence, option C is correct.

Answer 4: D

Solutions:

- The judgement specifically did not allow for reservations in promotions for OBCs in central government services, thus making statement 4 incorrect. The decision to exclude reservations in promotions was meant to preserve the efficiency and meritocracy in public services.

Hence, option D is correct.

Answer 5: C

Solutions:

- The Coriolis force, caused by the Earth's rotation, acts to deflect winds and curves them. However, in the Bay of Bengal, located closer to the equator, the Coriolis force is weaker compared to regions farther north or south. While it contributes to rotation, a very strong Coriolis force is not a prerequisite for tropical cyclone formation in this region.

Hence, Option C is correct.

Answer 6: D

Solutions:

- Statement 1 is correct: Carbon fiber is indeed a synthetic material made from carbon atoms.
- Statement 2 is correct: Carbon fiber is primarily used in the construction of lightweight aircraft and spacecraft due to its strength and low weight.
- Statement 3 is correct: Carbon fiber has a high strength-to-weight ratio and is

known for its durability, making it valuable in various applications such as automotive, sports equipment, and aerospace.

- Statement 4 is incorrect: Carbon fiber is not a natural fiber obtained from plants like jute and bamboo; it is a synthetic material.

Hence, Option D is correct.

Answer 7: C

Solutions:

- Caterpillars have a unique ability known as electroreception, which allows them to sense electric fields around them. This is achieved through small bristles on their body called setae. This capability is not common among most land-based animals, making it a distinctive feature of caterpillars.

Hence, option C is correct.

Answer 8: D

Solutions:

- Turkmenistan borders Afghanistan to the south but borders Iran and Kazakhstan to the west.

Hence, option D is correct.

Answer 9: C

Solutions:

- PREFIRE aims to understand how far-infrared radiation emitted by Earth interacts with the atmosphere, particularly at the poles, where data is scarce. PREFIRE (Polar Radiant Energy in the Far-InfraRed Experiment), is a collaborative effort between NASA and the University of Wisconsin-Madison. The mission aims to study heat emissions at the Earth's poles.

Hence, option C is correct.

Answer 10: B

Solutions:

- Statement 1 is incorrect: While MRI is indeed used for generating detailed images of the inside of the body, it does



not involve the use of radiation.

- Statement 2 is correct: Linear Accelerator is commonly used in radiation therapy for cancer treatment by delivering high-energy X-rays or electrons to target and destroy cancer cells with precision.
- Statement 3 is correct: MRI can be utilized for real-time monitoring and guidance

during radiation therapy sessions, aiding in accurate treatment delivery.

- Statement 4 is incorrect: Linear Accelerator is not used for performing non-invasive imaging scans; its primary purpose is cancer treatment through radiation therapy.

Hence, Option B is correct.





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GET IN TOUCH

+919999057869

www.upsmentorship.com

@mentorship.india

C – 103, Second Floor, Sector-2
Noida – 201301

contact@mentorshipindia.com