

## UPSC CURRENT AFFAIRS NOTES 30-11-2023

### 1. Consider the following statements, with reference to Pressmud:

1. Pressmud is the residue of the filtration of sugarcane juice.
2. It is often known as filter cake or press cake.
3. It eliminates pre-treatment costs as it lacks the organic polymer lignin.

### How many of the statements given above are correct?

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

**Answer:** (C)

**Explanation:** Pressmud is a residual by-product in the sugar industry often known as filter cake or press cake. The by-product can help Indian sugar mills generate extra revenue by utilising it as a feedstock for biogas production through anaerobic digestion and subsequent purification to create compressed biogas (CBG).

### Advantages:

1. It eliminates the complexities associated with the feedstock supply chain, unlike agricultural residue.
2. It is sourced from one or two producers or sugar mills, as opposed to agricultural residue, which involves multiple producers / farmers within a narrow window of 45 days per year.
3. It is an organic material which can minimize anaerobic digesters, leading to lower gas output.
4. It eliminates pre-treatment costs as it lacks the organic polymer lignin, unlike agriresidue.
5. It has higher conversion efficiency than the agriculture residue.
6. It can help generate 460,000 tonnes of compressed biogas CBG valued at Rs 2,484 crore.

### Disadvantages:

1. High demand leading to surge in the prices.
2. The lack of long-term agreements with sugar mills and the involvement of mediators in procurement further compound the challenges.

3. Lack of CBG plants to store feedstock for the entire year, since sugar mills operate for a specific period.
4. Storing pressmud proves challenging as it undergoes gradual decomposition, resulting in the breakdown of organic compounds which complicates long-term storage and raises production costs. Hence, all statements are correct.

**2. 3HP, recently seen in the news, is related to which of the following?**

- (A) A newly found music butterfly species in the Manas National Park of Assam.
- (B) An online database that maps old coal-fired units and new proposals since 2010.
- (C) Indigenously developed India's 1st safe vero-cell rabies vaccine.
- (D) A short-course Tuberculosis Preventive Treatment (TPT) regimen, endorsed by the WHO.

**Answer:** (D)

**Explanation:** Recently the Tamil Nadu and Kerala have begun using 3HP for TB preventive treatment even though the states are yet to receive the drugs from the Central TB Division. 3HP is a short-course Tuberculosis Preventive Treatment (TPT) regimen which is endorsed by the WHO. It combines high dose Isoniazid (H) and high dose rifapentine (P) once weekly for 3 months. 3HP is associated with significantly lower hepatotoxicity and higher rates of treatment completion than isoniazid preventive treatment. While 3HP is expensive in the short-term, the shorter duration of treatment and higher rates of treatment completion make it more cost-effective in the long-term. Children of age 2 and above can take 3HP. All household contacts of a person who has been recently diagnosed with pulmonary TB are tested for TB disease and those who do not have TB disease but have been infected with the bacteria are offered treatment to prevent the progression from latent infection to TB disease. It is offered for all household contacts of a person who have following criteria: Persons recently diagnosed with pulmonary TB are tested for TB disease. People who do not have TB disease but have been infected with the bacteria. It is offered treatment to prevent the progression from latent infection to TB disease. Since treatment with 3HP involves only 12 doses, compliance is better, adverse effects of the drugs are less and treatment completion is better compared with others. The 3HP regimen has been associated with a higher completion rate in all subgroups where adults with HIV, adults without HIV, and



children and adolescents. TPT using the 3HP drug is cheaper than isoniazid monotherapy for six months. Hence, statement (d) is correct.

**3. Consider the following statements, with reference to Green leaf volatiles:**

1. They are part of a plant's defense mechanism against herbivores and pathogens.
2. GLVs can attract or repel insects.
3. They are primarily composed of six-carbon aldehydes, alcohols, and esters.

**How many of the statements given above are correct?**

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

**Answer:** (C)

**Explanation:** GLVs are part of a plant's defense mechanism against herbivores and pathogens. When a plant is damaged, enzymes break down fatty acids in cell membranes, releasing GLVs that signal nearby plants to prepare for potential threats. GLVs can attract or repel insects. For instance, they might lure predators of herbivores or serve as warning signals to neighboring plants.

**Aldehydes:** These include compounds such as hexenal and hexanal, which contribute to the characteristic fresh, grassy scent.

**Alcohols:** Compounds like hexenol and hexanol are often associated with floral aromas and contribute to the overall volatile profile.

**Esters:** These compounds, such as hexyl acetate, can have fruity or sweet aromas and are crucial for plant signaling and defense mechanisms. Hence, all statements are correct.

**4. Consider the following statements:**

**Statement 1** – The concept of "frame-dragging" or the Lense-Thirring effect is associated with the distortion of space time due to a rotating massive object.

**Statement 2** – Frame-dragging occurs because the rotation of a massive object



causes a dragging effect on the surrounding spacetime, affecting nearby objects' orbits.

**Which one of the following is correct in respect of the above statements?**

- (A) Both Statement-I and Statement-II are correct and Statement II is the correct explanation for Statement-I
- (B) Both Statement-I and Statement-II are correct and Statement II is not the correct explanation for Statement-I
- (C) Statement-I is correct but statement II is incorrect
- (D) Statement -I is incorrect but Statement -II is correct

**Answer:** (A)

**Explanation:** Frame-dragging, also known as the Lense-Thirring effect, is a consequence of Einstein's general theory of relativity. According to this concept, a rotating massive object drags and twists the fabric of space time around it. This dragging effect influences the motion of nearby objects, causing their orbits to precess or change due to the distortion of spacetime caused by the rotating mass.

**5. Consider the following statements, with reference to Parthenon Sculptures:**

1. They are a collection of different types of marble architectural decoration.
2. They are from the temple of Athena on the Acropolis in Athens, Greece.

**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:** (A)

**Explanation:** Recently a diplomatic row sparked between Greece and the UK on Monday after British Prime Minister cancelled a meeting with his Greek counterpart over the status of the Parthenon Sculptures. The Parthenon Sculptures are a collection of different types of marble architectural decoration from the temple of Athena (the Parthenon) on the Acropolis in Athens. It is made between 447BC and 432BC which is more than 2,000 years old. Most of them originally adorned the walls and grounds of the Parthenon temple on the



rocky Acropolis hill in Athens.

**The Parthenon Sculptures consist of:**

1. A frieze which shows the procession of the Panathenaic festival (the commemoration of the birthday of the goddess Athena);
2. A series of metopes (sculpted relief panels) depicting the battle between Centaurs and Lapiths at the marriage-feast of Peirithoos; and 3. Figures of the gods and legendary heroes from the temple's pediments.

The British Museum houses 15 metopes, 17 pedimental figures and 247ft (75m) of the original frieze. More than 50% of the original sculptures is housed at British Museum, London and half in Athens They were removed from the Parthenon in the early 19th century by Thomas Bruce, the 7th Earl of Elgin and then-British ambassador to the Ottoman Empire. The marbles were taken to Britain and purchased by the British Museum in 1816. Athens has been demanding the return of the sculptures since it became independent in the early 1830s. The campaign gained momentum in the 1980s after Greek Oscar-nominated actress Melina Mercouri launched a movement for their return when she was culture minister between 1981 and 1989. The British Museum, the caretaker of the sculptures, claims that they were acquired by Elgin under a legal contract with the Ottoman Empire and has rejected the demands of their return. Hence, both statements are correct.