

- Google is celebrating the 166th birth anniversary of microbiologist Hans Christian Joachim Gram the man who discovered the Gram staining method.

About:

- The Gram staining technique is the most important and widely used **microbiological differential staining technique**.
- It was developed by **Dr. Christian Gram** in 1884.
- Gram staining is used to differentiate **two large groups of bacteria** based on their different cell wall constituents.
- Those bacteria which **retain the primary stain** are called **Gram positive**.
- Those bacteria which get **decolorized** and then get counterstained are called **Gram negative**.

POLY CRACK TECHNOLOGY

Why in News?

- The East Coast Railways commissioned the first waste-to-energy plant of Railways sector of India. It is the fourth such plant in the country.

About:

- The plant installed **converts waste** collected from the garbage disposal units **into carbon powder, diesel and gas** using Poly Crack Technology.
- The **diesel oil** is to be **sold by the Railways** to other stake holders for commercial purposes.
- The **gas and carbon powder** are to be **used in brick manufacturing**.
- The best thing of the plant is that it does **not leave any waste at the end**.
- The plant has the capacity to **process 500 kg of waste per day** and will **earn Rs 17.5 lakh per annum**.
- The first of such plant was established by **Infosys in 2011 at Bengaluru**. The second plant was established in **Delhi in 2014** and the third was installed by **Hindalco in 2019**.

Poly Crack Technology:

- In Poly Crack Technology, **waste is processed and reformed in 24 hours**. The only drawback is that it **requires larger area**.

- The technology involves de-polymerization, cracking, reforming, scrubbing, particle filtration and rapid quenching.

BASMATI RICE GENOME SEQUENCED

Why in News?

- Scientists have mapped the complete genome of two basmati rice varieties Basmati 334 and Dom Sufid.

About:

- Gene mapping describes the methods used to **identify the locus of a gene** and the **distances between genes**.
- Genome mapping is used **to identify and record the location of genes** and the distances between genes on a chromosome.
- The essence of all genome mapping is to **place a collection of molecular markers onto their respective positions on the genome**.
- Molecular markers come in **all forms**.
- Basmati 334**: It is **from Pakistan**, known to be drought tolerant and resistant to rice-killing bacterial blight.
- Dom Sufid**: It is from **Iran, aromatic long-grain rice** that is one of the most expensive on the market.
- The most genetic material in basmati comes from japonica —a **rice group found in East Asia** — followed by the rice group aus found in **Bangladesh**.

ORGANOIDS

Why in News?

- At the Society for Neuroscience's 49th annual meeting, two neuroscientists warned the gathering that fellow scientists are "perilously close" to crossing the ethical red line of growing mini brains or organoids in the laboratory that can perceive or feel things.

About

- Organoids are a **group of cells grown in laboratories into three dimensional**, miniature