

1 Biobanks (Source: *Indian Express*)

It is a repository of samples of animal cells including oocytes (egg cells), sperm and somatic cells which are stored in liquid nitrogen to -196°C . It can be created for storing both human as well as animal cells.

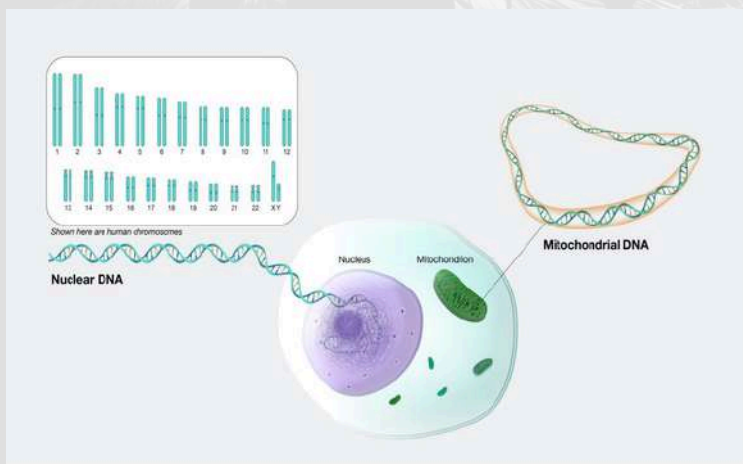
Features

- Used in biomedical research, including genomics, proteomics, and metabolism studies to understand diseases and improve diagnostics by studying the stored cells.
- Are crucial for the growth of precision medicine.
- Patients' blood /cells are voluntarily collected and stored for long term research.
- Major challenge is to maintain the proper temperature on a sustained manner.
- Will help in taking preventive measures if any genetic markers present in persons storing cells.



Fact Source Genome

- The genome is the entire set of DNA or RNA instructions found in a cell.
- In humans, the genome consists of 23 pairs of chromosomes located in nucleus, as well as a small chromosome in mitochondria.
- A genome contains all the information needed for an individual to develop and function.





DATE: 12 FEBRUARY 2026

2 Consumer Price Index (CPI) (Source: *The Hindu*)

CPI measure changes in prices of goods and services that households acquire for the purpose of consumption.

Facts you need to know

(Please learn thoroughly these for 2026 CSE Prelims)

- It is used as a tool by governments and central banks for inflation targeting and for monitoring price stability.
- It is used to index the dearness allowance for employees to reflect increases in prices.
- The CPI is released by National Statistical Office under the Ministry of Statistics.
- **CPI base year is to be changed to 2024 from earlier 2012.**
- The composition of the inflation basket has changes: the weight of food and beverages has been reduced from 54% to 37%.
- The United Nations Statistical Division's (UNSD) Classification of Individual Consumption According to Purpose (COICOP 2018) will be adopted into CPI for better global comparison.
- The CPI basket now includes 358 weighted items, up from 299 earlier.
- New inclusions include rural house rent, OTT services, international air travel, and newer energy sources such as CNG and PNG.
- The number of service items has risen to 50.
- The new CPI uses the Jevons index, a chain-price method that links monthly price changes.

3 Dayanand Saraswati (Source: *PIB*)

He gave the clarion call "Go Back to Vedas" as he considered them the most authoritative repository of knowledge and truth spoken in the "Words of God." This will also help in reducing the hegemony of western thoughts.

He was influenced by the teachings of Swami Virajananda and later on established **Arya Samaj**.





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Contributions

- He founded **Arya Samaj** to re-establish the teachings of the ancient Vedas.
- To him Veda is rock-bed of Hindu culture and **infallible**, being the inspired one of God.
- He was **against** idol worship, caste system, ritualism, fatalism, infanticide, sale of grooms etc.
- He also stood for the liberation of women and upliftment of depressed class.
- He advocated for **Suddhi movement** to reconvert the other sects to Hindu order.
- He established **Girl's Gurukulas and DAV colleges** to free people from the clutches of western education.
- He was the first man to use the term **Swaraj** in the context of Indian freedom movement as political independence was one of the first objectives of Dayananda.

Books

- Satyarth Prakash
- Rig-Vedaadi
- Bhasya-Bhoomika
- Sanskar Vidhi.

Fact Source

- The Brahmo Samaj is a socio-religious reform movement founded by Raja Ram Mohan Roy. It aimed to purify Hinduism by promoting strict monotheism, opposing idol worship, and tackling social evils like Sati and the caste system.
- It advocated for a formless God and social equality.

4 Impact of Climate Change in Arctics (Source: *The Hindu*)

The increasing impact of global warming is deeply impacting the poles, both North and South poles. The northernmost region of Earth has been until recently covered under thick ice blocking access to buried resources and newer travel routes.



Geography

- Arctic region consists of ice-covered Arctic Ocean surrounded by the treeless, frozen permafrost of northern regions from Alaska, Canada, and Greenland to Scandinavia and Russia.

What impact will it cause ?

- Will make Arctic ocean ice-free in summers ensuring newer shipping routes and opportunities for resource extraction.
- Thawing of ice will release stored methane and carbon dioxide into the atmosphere.
- Species dependent on ice, such as polar bears, walruses will face habitat loss.
- Will affect livelihood and culture of indigenous population like the inuits.

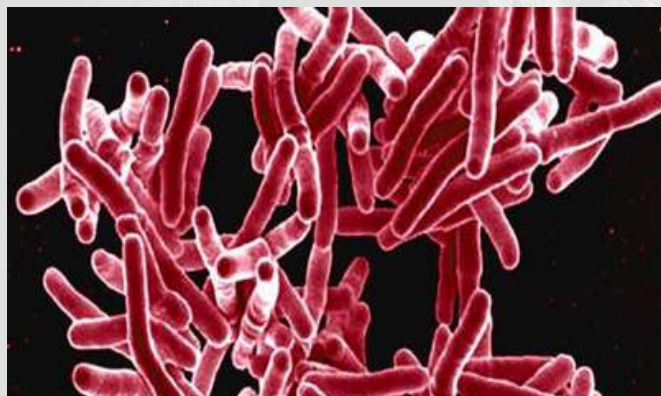
5 Drug- Resistant Tuberculosis

(Source: *PIB*)

Multi drug resistant Tuberculosis a severe form of TB caused by bacteria (*Mycobacterium tuberculosis*) resistant to at least isoniazid and rifampicin, the two most potent first-line drugs against Tb.

What is Tb ?

- Tuberculosis (TB) is an infectious disease caused by *Mycobacterium tuberculosis* bacteria, primarily affecting the lungs but capable of spreading to other organs.
- It is transmitted via airborne droplets when an infected person coughs or sneezes.



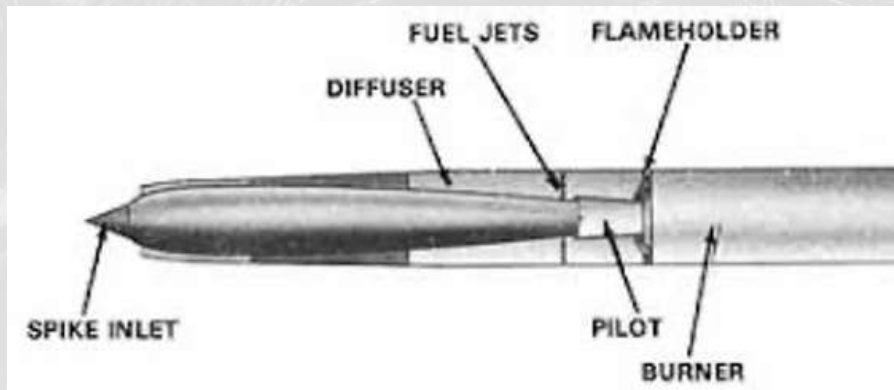
What is Multi drug resistance

- When the medicines usually given to control a disease is not acting ,then the condition is termed as multi drug resistance.
- This results in costlier and prolonged treatment , higher mortality and affects quality of life.
- For places with high population density such infectious diseases can be a major challenge.

6 Ramjet Engine (Source: *Hindu Business Line*)

A ramjet is a simple, air-breathing jet engine with no moving parts (no compressor or turbine) that relies on high forward speed (supersonic, typically Mach 2–5) to "ram" and compress air for combustion.

- The BrahMos is a long-range, ramjet-powered supersonic cruise missile.



What makes them important ?

- Unlike traditional rocket motors, which burn fuel quickly and then coast, ramjet-powered missiles can maintain high speeds for much longer durations.
- This will make ramjet faster, more manoeuvrable and significantly harder for enemy aircraft to evade.
- Will give fighter aircraft a decisive edge in beyond-visual-range combat.

Global Knowledge Update: 6 Key Pillars of Modern Affairs

Biobanks & Genomics



Biological Repositories
 at -196°C : Stores animal/human cells in liquid nitrogen.



The Engine of Precision Medicine:
 Helps understand diseases and improve diagnostics.



The Challenge of Thermal Stability
 Sustained maintenance of extreme sub-zero temperatures is the primary operational hurdle.

The New Consumer Price Index (CPI)



Base Year Shift:
 2012 to 2024
 Updates to reflect current household consumption patterns.



Food & Beverage Weighting Reduced:
 CUT from 54% to 37%.



Expanding the Consumption Basket: Now includes 358 items (up from 299) featuring modern additions.

Arctic Climate Change



The Carbon and Methane Threat:
 Thawing ice releases stored greenhouse gases, accelerating warming.

Thawing the "Frozen Frontier":
 Melting permafrost opens potential shipping routes and resource access.

Habitat and Cultural Loss:
 Polar bears face habitat destruction, and indigenous populations suffer livelihood disruptions.

Socio-Religious Reform: Dayanand Saraswati



"Go Back to the Vedas":
 Founded Arya Samaj to re-establish Vedic teachings.



Educational Legacy:
 Established Girl's Gurokulas and DAV colleges as an alternative to Western education.

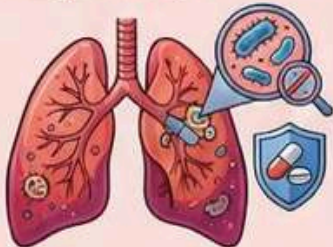
Pioneer of "Swaraj" and Social Equity:
 First to use "Swaraj," fought against caste system, idol worship, and women's oppression.



Multi Drug-Resistant Tuberculosis (MDR-TB)



Resistance to Primary Treatments:
Mycobacterium tuberculosis resistant to at least isoniazid and rifampicin.



Airborne Transmission Risk:
 Spreads through airborne droplets, major challenge in high-density populations.



Higher Mortality and Cost:
 Resistance results in significantly more expensive, prolonged treatments and lower quality of life.

Aerospace Tech: Ramjet Engines



Supersonic "Ram" Compression → Fuel → Combustion chamber

Supersonic "Ram" Compression:
 No moving parts: relies on high forward speeds (Mach 2-3) to compress air.



Ramjets vs. Traditional Rockets:
 Maintains high speed for longer, increasing manoeuvrability.



The Brahmes Advantage:
 Ramjet technology provides a decisive edge, making projectiles harder to evade.