

**GOVERNANCE****Criticisms of Electoral Bond Scheme (EBS) – India's voters deserve a bond****Why was EBS introduced?**

- **Objective of Eliminating Black Money:** EBS was introduced with the goal to eliminate black money from political funding, as stated by the finance minister in his 2017-18 Budget Speech.
- **Lack of Transparency in Political Funding:** The scheme aimed to address the issue of political parties relying heavily on anonymous cash donations, often less than ₹20,000, which didn't require revealing the donor's identity.
- **Intended to Cleanse Political System:** The idea was to create a 'clean' channel for political contributions, moving away from anonymous cash donations and towards a more traceable and accountable system.
- **Shift from Cash to Bank Transactions:** It's aimed to enhance transparency in political funding by allowing contributions through bond purchases from the State Bank of India. This shift towards bank transactions was intended to make the process more traceable and accountable.

**What are the criticisms of EBS?**

- **Lack of Transparency:** The anonymity of donors in the EBS prevents the public from knowing who funds political parties.
- **Questionable Source of Funds:** Many bond purchasers seemed to have income disproportionate to their business, raising doubts about the legitimacy of their funds.
- **Legal and Ethical Concerns:** The Supreme Court and the RBI questioned the EBS, especially its transparency, enforceability and traceability aspects.
- **Potential for Misuse:** The scheme's confidentiality clause makes it nearly impossible to link bond purchasers with political parties, opening doors for undisclosed and questionable political donations.
- **Complicated Enforcement under Section 7(4):** This section of the EBS makes it difficult to disclose buyer information, thereby hindering investigations and reducing accountability.

**Role of the State Bank of India (SBI) in the EBS**

The State Bank of India (SBI) is responsible for issuing Electoral Bonds in the EBS. However, questions have arisen about SBI's record-keeping, particularly whether it can link bond purchases to specific donors and recipients. This aspect has become crucial in discussions about the transparency and effectiveness of the EBS.

**What should be done?**

- **Parliamentary Oversight:** Engage Parliament to develop more transparent and accountable funding methods, as the article suggests the legislative body holds the key to reform.
- **Public Awareness:** Educate citizens about the importance of clean political funding to encourage demand for more transparent practices.
- **Judicial Review:** Allow the judiciary to periodically review and suggest improvements to the scheme, ensuring it aligns with democratic principles and transparency standards.

**ECONOMY****Role of digitization in India's economy: Data marketplaces: the next frontier****What is the role of digitization in India's economy?**

- **Boosting GDP:** Digitization can potentially add \$450-500 billion to India's GDP by 2025, playing a crucial role in economic growth.
- **Government Operations:** Rapid digitization in government processes enhances efficiency and transparency.
- **Utilizing Citizen Data:** Government's collection and use of Non-Personal Data (NPD) aid in improving public services and decision-making.
- **Predictive Analytics:** Applying AI and analytics to NPD helps in forecasting in areas like meteorology, infrastructure, and employment.

**What are the different types of data collected?**

- **Personal Data:** This type involves identifiable information about individuals. It can be used to directly map an individual, like names or identification numbers.
- **Non-Personal Data (NPD):** This is the primary type of data collected by the government. It excludes personal identifiers.
- **Data Use:** Both types of data are crucial for governmental planning and public service delivery, with NPD serving as a significant resource for 'public good' applications.

**What are the major concerns related to regulations for non-personal data in India?**

- **Lack of Enforceable Regulations:** Current policies like the National Data Governance Framework Policy offer only limited guidance without strict legal enforcement.
- **Risk of De-anonymisation:** There's concern about the potential to identify individuals from NPD, compromising privacy.
- **Absence of Central Regulatory Authority:** No dedicated body exists to oversee NPD usage and sharing.
- **Unclear Ownership and Sharing Mechanisms:** Ambiguity in who owns NPD and how it should be shared among stakeholders.
- **Vulnerability to Misuse by Big Tech:** Unregulated NPD could unfairly benefit large corporations, leading to privacy breaches.
- **Inefficiencies in Data Exchange: The current approach to data sharing is not optimized, hindering the full utilization of NPD in decision-making and public service enhancement.**

**What steps are taken to regulate the collection of data?**

**Regulation in India**

- **National Data Governance Framework Policy (NPD Framework):** Introduced by the Ministry of Electronics and Information Technology (MeiTY) to guide the use of NPD.
- **Expert Committee Recommendations:** Led by Kris Gopalakrishnan, focusing on issues like de-anonymisation risks and data sharing mechanisms
- **State-Level Initiatives:** For example, the agriculture data exchange in Telangana, and the India Urban Data Exchange by the Ministry of Housing & Urban Affairs with the Indian Institute of Science.

**Global Efforts**

- **Australia:** Implemented data exchange frameworks and protocols in various sectors like housing, employment, and agriculture.
- **United Kingdom:** Established specific data exchanges to address unemployment and other social issues.
- **Estonia:** Known for its advanced digital governance, Estonia has developed efficient data exchange systems.

**PRELIM FACTS**

**1. PIB Fact Check Unit notified under IT Rules 2021**

Recently, the Centre has notified the fact check unit under the Press Information Bureau (PIB) as the authorised unit for the Union government. It has been notified under the recently amended Information and Technology Rules of 2021.

**About Fact Check Unit (FCU)**

1. The Fact Check Unit was established under PIB in November 2019.
2. Objective: Its objective is of acting as a deterrent to creators and disseminators of fake news and misinformation. It also provides people with an easy avenue to report suspicious and questionable information pertaining to the Government of India.
3. Mandate: The FCU is mandated to counter misinformation on Government policies, initiatives and schemes either suo motu or under a reference via complaints. The FCU actively monitors, detects, and counters disinformation campaigns, ensuring that false information about the Government is promptly exposed and corrected.
4. The PIB fact-check unit categorises any information received by it into three categories, namely fake, misleading, and true.

- a) If a piece of information is completely false and can “deceive or manipulate the audience, with or without the intention to cause potential harm”, it is classified as ‘fake news’.
  - b) If a content uploaded has “selective presentation of facts or figures or with distortion of facts or figures” and can mislead or deceive readers, it is classified as ‘misleading’ by the fact-check unit.
  - c) Content that the fact-check unit finds factual after review is classified as ‘true’.
5. Inclusive measures: The PIB Fact Check Unit has made efforts to make their fact-checks accessible to people with disabilities. They’ve focused on providing alternative text (ALT) for images, recognizing that images are a significant part of social media and ensuring universal access to content is essential.

## **2. International Partnership for Hydrogen and Fuel Cells in the Economy (IPHE)**

Recently, the 41st Steering Committee Meeting of the International Partnership for Hydrogen and Fuel Cells in the Economy (IPHE) was hosted by India in New Delhi.

1. About: The International Partnership for Hydrogen and Fuel Cells in the Economy (IPHE) is an international inter-governmental partnership. It was established in 2003.
2. Member: It consists of 23 member countries and the European Commission. The member countries include major economies such as the United States, Japan, Germany, China, South Korea, Canada, and India.
3. Mission: The IPHE’s mission is to facilitate and accelerate the transition to clean and efficient energy and mobility systems using hydrogen and fuel cell technologies across applications and sectors.
4. IPHE serves as a mechanism to organize and implement effective, efficient, and focused international research, development, demonstration, and commercial utilization activities related to hydrogen and fuel cell technologies.
5. It also provides a forum for sharing information on policies and technology status, as well as on initiatives, codes, and standards to accelerate the cost-effective transition to the use of fuel cells and hydrogen in the economy.

## **Green Hydrogen and its derivatives**

1. Green hydrogen, also known as GH<sub>2</sub>, is a type of hydrogen that is produced using renewable energy sources. It is considered a key element for the deep decarbonization of energy mix.
2. Derivatives of green hydrogen, such as green ammonia and green methanol, are long-term energy carriers that store surplus renewable electricity produced during periods of low demand.

Note: Green ammonia is produced from renewable energy sources and has the potential to play an important role in reducing the world’s dependence on fossil fuels.

3. Green methanol is a key product in the chemical industry. It can be used to produce other chemicals such as formaldehyde, acetic acid, and plastics, or replace methanol as the main element.
4. They can be used as an industrial energy source, green feedstock, or green transportation fuel.
5. These derivatives enable the transportation and storage of renewable electricity, thus helping to decarbonize hard-to-abate sectors (such as heavy industry, chemicals and materials, and heavy transportation) and creating a resilient future energy system.

## **3. Biomining**

Delhi’s biomining project to clear landfill sites is likely to miss the latest deadline of 2024.

1. About: Biomining is the scientific process of excavation, treatment, segregation and gainful utilisation of aged municipal solid waste lying in dumpsites typically referred to as legacy waste.
2. It comprises 4 steps: It involves excavation of legacy waste, stabilizing the waste using bioremediation, segregation of excavated waste and then sustainable management and its safe disposal.
3. Methods of Biomining: The methods of biomining include Bioleaching, Bio-oxidation, Dump leaching, and Agitated leaching.
  - a) Bioleaching: This method involves dumping low-grade ore into a heap called a leach pile and then soaking it with a weak sulphuric acid wash.

- The acid reacts with the ore's sulfide matrix and encourages the growth of bacterial strain which starts to degrade ore and releases minerals or metals in fluid form.
- b) Bio-oxidation method is widely used for the extraction of gold from ores. The ore is exposed to bacterial oxidation which degrades the insoluble pyrite and arsenic components.
  - c) Dump leaching is an industrial process to extract precious metals and copper from ores.
  - d) Agitation leaching method is chemical process used to extract mineral from soil.
- 4) Biomining in Solid Waste Management: a) Biomining is used to clear oil spills in the sea and pollution from the soil, groundwater, surface water, and air.  
b) It is used to degrade environmental contaminants into less toxic or non-toxic forms.  
c) It can also be used for wastewater treatment, industrial waste, hydrocarbon contamination, storage tanks and pipes, landfills, pesticides, herbicides, and the treatment of agricultural chemical waste.
5. Benefits: a) Biomining allows to recycle resources by extracting useful components from the waste such as metal, as compost in fertilizer, etc.  
b) It is eco-friendly, environmentally sustainable, and after using this technique, it can be used as the contaminated land for other purposes.
6. Disadvantages: a) Biomining is restricted to only biodegradable compounds and takes time to show results.  
b) There is risk of leakage and treatment of the acidic, metal-rich solution created by the microbes.  
c) It can be managed if done in controlled conditions by following protocols.

#### **4. Price stabilization fund**

Recently, the government has approved inclusion of wheat and rice under its price stabilization fund (PSF).

About Price stabilization fund

1. About: The Price Stabilization Fund (PSF) was set up in 2014-15 under the Department of Agriculture, Cooperation & Farmers Welfare (DAC&FW). The PSF scheme was transferred to the Department of Consumer Affairs (DOCA) in 2016.
2. Regulation of the fund: The fund management is centrally managed by a Price Stabilisation Fund Management Committee (PSFMC) that approves all State Government's and Central Agencies' proposals.  
The Small Farmers Agribusiness Consortium (SFAC) maintains the PSF as a central corpus fund.
3. Objective: The fund is aimed at increasing or decreasing prices of selected commodities by distributing or procuring the commodity to stabilize the price in a range. The fund is usually used for activities aimed at bringing down/up the high/low prices.
4. Function: a. It helps to regulate the price volatility of important agri-horticultural commodities like onion, potatoes and pulses were also added subsequently.  
b. The PSF is utilized for granting interest-free advance of working capital to Central Agencies, State/UT Governments/Agencies to undertake market intervention operations.  
c. Apart from domestic procurement from farmers/wholesale mandis, import may also be undertaken with support from the Fund.  
d. Under the PSF scheme, interest-free loans are extended to State Governments/Union Territories (UTs) and Central Agencies to cover their working capital and related expenses incurred in the procurement and distribution of these commodities.

#### **5. Barberton Greenstone Belt**

Recently, scientists discovered evidence of some of the earliest recorded earthquakes in the Barberton Greenstone Belt.

##### **About Barberton Greenstone Belt**

Location– It is located on the eastern boundary of the Kaapvaal Craton in South Africa.

##### **Significance**

1. It is renowned for its gold deposits and for its komatiites, an uncommon type of ultramafic volcanic rock named after the Komati River that traverses the belt.

2. The Barberton Greenstone Belt in the Eswatini–Barberton areas contains some of the oldest exposed rocks on Earth, dating back over 3.6 billion years.
3. These rocks also preserve some of the earliest evidence of life on Earth, second only to the Isua Greenstone Belt in Western Greenland.
4. The Makhonjwa Mountains constitute 40% of the Barberton belt.

Note– The Barberton Greenstone Belt’s outcrops were added to UNESCO’s World Heritage Sites list in 2008 under the name ‘Barberton Makhonjwa Mountains’.

**What are ultramafic rocks?**

1. About– Ultramafic (or ultrabasic) rocks are dark-colored igneous and meta-igneous rocks. Ultramafic rocks are predominantly found in orogenic belts, where mountains are formed.
2. Composition– They mostly consist of over 90% mafic minerals, with high levels of magnesium oxide (more than 18% MgO) and iron oxide (FeO). They have low silica (less than 45%) and potassium content.
3. Significance– It is believed that the Earth’s mantle is made up of ultramafic rocks.

**ANSWER WRITING**

**Q.** What do you understand by nanotechnology and how is it helping in the health sector?

Nanotechnology, a multidisciplinary field dealing with the manipulation and control of matter at the atomic or molecular scale (1 to 100 nanometers), has been heralded as a game-changer in multiple sectors. In India, this technology is opening new frontiers in healthcare, enabling more effective diagnosis, treatment, and prevention of diseases.

**Applications of Nanotechnology in the Health Sector**

- **Effective Drug Delivery:** One application of nanotechnology in medicine currently being developed involves employing nanoparticles to deliver drugs, heat, light, or other substances to specific types of cells.  
For example, a team of scientists has created a nanomicelle that can be used for effective drug delivery to treat various cancers including breast, colon, and lung cancer.
- **Diagnostic Techniques:** Research in Nanotech is being done for using antibodies attached to carbon nanotubes in chips to detect cancer cells in the bloodstream.
- **Antibacterial Treatments:** Researchers at the University of Houston are developing a technique to kill bacteria using gold nanoparticles and infrared light. This method may provide a possible solution of the growing problem of antibiotic resistance.
- **Cell Repair:** Nanotech research involves the use of manufactured nano-robots to make repairs at the cellular level.
- Nanorobots could actually be programmed to repair specific diseased cells, functioning in a similar way to antibodies in our natural healing processes.
- **Preventing Infections:** Nanomaterials like silver nanoparticles, with antimicrobial properties, are being incorporated in medical devices and wound dressings to prevent infections.
  - **For instance, Gujarat-based company, Amrutam,** has developed nano-silver coated bandages that aid in faster wound healing.

**Conclusion**

As nanotechnology research accelerates, it holds the potential to further revolutionize healthcare, making it more effective, accessible, and affordable. The use of nanotechnology in the field of medicine could revolutionize the way we detect and treat damage to the human body and disease in the future.

**MCQs**

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| <ol style="list-style-type: none"> <li>1. Which of the following are not necessarily the consequences of the proclamation of the President’s rule in a State?                     <ol style="list-style-type: none"> <li>1. 1.Dissolution of the State Legislative Assembly</li> <li>2. 2.Removal of the Council of Ministers in the State</li> <li>3. Dissolution of the local bodies</li> </ol> </li> </ol> | <p>Select the correct answer using the code given below:</p> <p>(a) 1 and 2 only      <b>(b) 1 and 3 only</b><br/>                     (c) 2 and 3 only      (d) 1, 2 and 3</p> <ol style="list-style-type: none"> <li>2. Consider the following statements about Purple Fest 2024:                     <ol style="list-style-type: none"> <li>1.It is organized by the Ministry of Culture.</li> </ol> </li> </ol> |
|---|---|

2. It aims to raise awareness about different disabilities and their impact on people's lives.  
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
3. Consider the following statements about the Pension Fund Regulatory and Development Authority:  
1. It is the regulatory body for overall supervision and regulation of pensions in India.  
2. It operates under the jurisdiction of the Ministry of Finance.  
3. It was established in 2003 based on the recommendations of the Indian government OASIS report.  
4. It was part of the establishment of the Indian National Pension Scheme.  
How many of the statements given above are correct?  
(a) Only one (b) Only two  
(c) Only three (d) **All four**
4. Which of the following statements about Down syndrome is true?  
(a) It is caused by a mutation in the X chromosome.  
(b) **It is a genetic disorder caused by an extra copy of chromosome 21.**  
(c) It is typically inherited from one's parents.  
(d) It can only be diagnosed after birth through physical characteristics.
5. Which of the following statements about Edwards syndrome is correct?  
(a) It is caused by an extra copy of chromosome 13.  
(b) Individuals with Edwards syndrome typically have a normal lifespan.  
(c) Common features include low birth weight, clenched fists with overlapping fingers, and severe intellectual disability.  
(d) **It occurs due to an extra copy of chromosome 18.**
6. Consider the following pairs:  
1. Garbhini-GA2 : determine the gestational age of a fetus  
2. Hanooman : capable of responding in 11 Indian languages  
3. Bhashini : translate the content to native language  
How many of the above pairs are correctly matched?  
(a) Only one (b) Only two  
(c) **All three** (d) None
7. Consider the following statements about Solar Energy Corporation of India Ltd (SECI):  
1. It works under the administrative control of the Ministry of New and Renewable Energy (MNRE).  
2. It is the only CPSU dedicated to the renewable energy sector.  
3. It has commissioned India's largest Battery Energy Storage System (BESS) in Khandwa district of Madhya Pradesh.  
How many of the above statements are correct?  
(a) Only one (b) **Only two**  
(c) All three (d) None
8. Consider the following statements:  
1. Ham Radio is exclusively used for emergency communication.  
2. Ham Radio operators are forbidden from communicating with individuals in other countries.  
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**
9. Consider the following statements:  
1. Chenab river is formed by the confluence of two rivers, Chandra and Bhaga.  
2. The Bhaga river originates from Surya taal lake.  
3. The Chandra river originates from glaciers east of the Bara-lacha la pass in Himachal Pradesh.  
How many of the above statements given is/are correct?  
(a) Only one (b) Only two  
(c) **All three** (d) None
10. Consider the following statements:  
1. The Ravi river rises from two streams, Budhil and Tantgari, which flow from the glaciers of the Rohtang Pass.  
2. The Ujh River is a major tributary of the Ravi River.  
3. Under the Indus Waters Treaty of 1960, the waters of the Ravi, Sutlej and Beas River were allocated to India.  
How many of the above statements given is/are correct?  
(a) Only one (b) Only two  
(c) **All three** (d) None