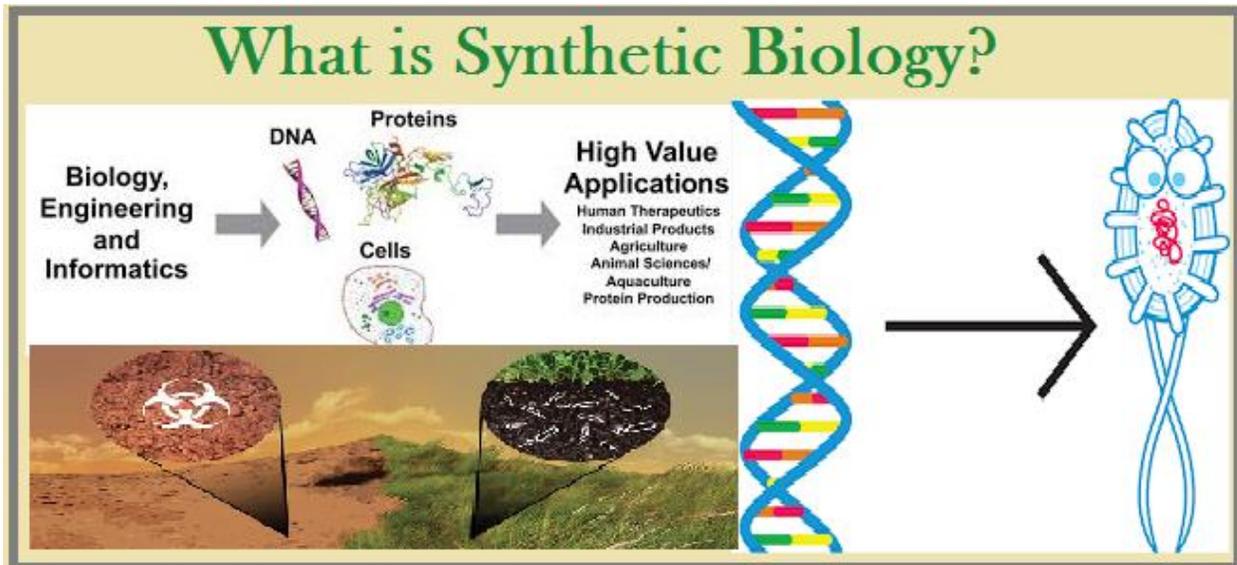


1. Synthetic Biology

Topic: Science and Technology



In News: A draft foresight paper on synthetic biology released by the Department of Biotechnology.

More on the Topic:

- This document will later help in **creating a national policy**. It looks at not only how synthetic biology has to be governed but also the very definition.
- Synthetic biology refers to **the science of using genetic sequencing, editing, and modification to create unnatural organisms or organic molecules that can function in living systems**.
- Synthetic biology enables scientists to design and synthesise new sequences of DNA from scratch.

About Synthetic Biology Applications:

- Synthetic biology has applications in various fields from **developing synthetic organisms for vaccination** to creating natural products in a lab such as vanillin, the organic compound extracted from vanilla seeds, which can now be grown in yeasts with additional plant genomes.
- In the pharmaceutical industry, synthetic biology can be used to make **natural compounds such as artemisinin used for the treatment of malaria and Car T cell therapy** for cancer treatment.
- It is starting to be used in the fashion industry as well; some companies are exploring the possibility of **dyeing jeans without producing hazardous waste**. It can also be used in to deliver **fixed nitrogen to plants** instead of using fertilisers, engineering microbes to create food additives or brew proteins.

The Concerns Associated with Synthetic Biology:

- The rise of synthetic biology has spurred biosecurity concerns that synthetic or redesigned organisms could be engineered for **bioterrorism**.
- Environmental hazards may be a aftermath of synthetic biology. These include **toxicity to animals and plants**
- There can be **adverse effects on biodiversity and ecosystem services**. For example, a toxin engineered into a plant to resist specific insect pests may also affect other invertebrates.
- There are also **ethical concerns about creation of human eugenics** (creation of human being with desired characteristics.)
- In addition, synthetic biology could lead to **land-use changes**, such as non-food synthetic organisms displacing other agricultural uses or wild land.

Source: Indian Express

2. Purple Revolution

Topic: Agriculture



In News: The government of India is planning to commence ‘**purple revolution**’ in Ramban district by encouraging lavender cultivation under the CSIR-IIIM’s Aroma Mission through Ministry of Science and Technology

More on the Topic:

- Regarding the purple revolution, awareness programs should be organised to showcase the lucrative aspects of lavender cultivation so that start-ups under Aroma Mission would be encouraged.

- This would also enhance the image of Doda District that is the birthplace of Purple Revolution.

About Purple Revolution:

- Under the Purple Revolution mission, **farmers were given free lavender saplings** for the first time in Doda district of Jammu and Kashmir.
- This revolution was started for **supporting agro economy based on domestic aromatic crop** by moving from imported aromatic oils to homegrown varieties.

About Aroma Mission:

- CSIR-IIIM's Aroma Mission is **providing means of livelihood to budding farmers and Agri-Technocrats** and promoting the spirit of entrepreneurship giving a boost to Start-Up India campaign.
- The objective of the mission is **to bring transformative change in aroma sector** through desired interventions in areas of agriculture, processing and product development for the growth of aroma industry and rural employment.
- The mission promotes cultivation of aromatic crops for essential oils which are in great demand by aroma industry.

Source: Indian Express

3. Star campaigners

Topic: Polity and Governance

In News: With Covid-19 cases witnessing decline across the country, the Election Commission of India (ECI) decided to restore the number of star campaigners a party can field for campaigning amid the ongoing polls in five states.

More on the Topic:

- A star campaigner can be described as **persons who are nominated by parties to campaign in a given set of constituencies.**
- The Election Commission of India did not provide any definition related to star campaigners.
- Actors, celebrities and senior political party members are the usual persons who are nominated to be star campaigners.
- Star campaigners for a party **should not exceed 40 where it is a recognized political party.**
- For parties that are deemed **unrecognized, the number of star campaigners should not be more than 20.**
- All expenses of the star campaigners will be borne by the respective political party.



Source: Indian Express

4. Fundamental Duties

Topic: Polity and Governance

In News: The Supreme Court has issued notices to the Centre and states in a writ petition seeking the enforcement of the fundamental duties of citizens as enshrined in the Constitution of India.



More on the Topic:

- The petition, filed by advocate Durga Dutt, argues that citizens have a duty to uphold the ideals of the country and to contribute to its growth and betterment, and that not carrying out the fundamental duties of the citizen has a direct bearing on the fundamental rights guaranteed under **Articles 14 (Equality before Law), 19 (Protection of certain rights regarding freedom of speech) and 21 (Right to Life) of the Constitution of India.**

How were the fundamental duties incorporated in the Constitution?

- The fundamental duties were incorporated in **Part IV-A of the Constitution by The Constitution (42nd Amendment) Act, 1976**, during Emergency.
- **Article 51(A) describes 11 fundamental duties**; 10 came with the 42nd Amendment; the 11th was added by the 86th Amendment in 2002.
- These duties are **not enforceable by law**. However, a court may take them into account while adjudicating on a matter.
- They were made a part of the Constitution **to emphasise the obligation of the citizen in return for the fundamental rights that he or she enjoys.**
- The Russian Constitution has the concept of fundamental duties.

Supreme Court on Legal Enforceability of FDs:

- The Supreme Court's **Ranganath Mishra judgment 2003** held that fundamental duties should not only be enforced by legal sanctions but also by social sanctions.
- **In AIIMS Students Union v. AIIMS 2001**, it was held by the Supreme Court that fundamental duties are equally important like fundamental rights.
- Though fundamental duties are not enforceable like fundamental rights they cannot be overlooked as duties in Part IV A.



- They are prefixed by the same word fundamental which was prefixed by the founding fathers of the Constitution to 'right' in Part III.

The Verma Committee Observations:

- **The Verma Committee on Fundamental Duties of the Citizens (1999)** identified the existence of legal provisions for the implementation of some of the Fundamental Duties. The committee provided with the provisions like:
- No person can disrespect the National flag, Constitution of India and the National Anthem under the Prevention of Insults to National Honour Act, 1971.
- The Protection of Civil Rights Act (1955) provided for punishments in case of any offence related to caste and religion.

The fundamental duties of the Indian citizens:

- (a) to abide by **the Constitution and respect its ideals and institutions**, the National Flag and the National Anthem;
- (b) to cherish and follow **the noble ideals** which inspired our national struggle for freedom;
- (c) to uphold and protect the **sovereignty, unity and integrity of India**;
- (d) **to defend the country** and render national service when called upon to do so;
- (e) **to promote harmony and the spirit of common brotherhood** amongst all the people of India transcending religious, linguistic and regional or sectional diversities; to renounce practices derogatory to the dignity of women;
- (f) **to value and preserve the rich heritage** of our composite culture;
- (g) **to protect and improve the natural environment** including forests, lakes, rivers and wild life, and to have compassion for living creatures;
- (h) **to develop the scientific temper**, humanism and the spirit of inquiry and reform;
- (i) **to safeguard public property and to abjure violence**;
- (j) to strive towards **excellence in all spheres of individual and collective activity** so that the nation constantly rises to higher levels of endeavour and achievement;
- (k) who is a parent or guardian to provide **opportunities for education to his child** or, as the case may be, ward between the age of six and fourteen years."

Source: Indian Express

5. Munich Security Conference

Topic: International Relations

In News: The External Affairs Minister (EAM) S Jaishankar has participated in the Munich Security conference.

More on the Topic:

- MSC is, world's leading forum, an annual conference on international security policy that takes place in Munich, Germany since 1963.
- The conference's goal is **to address current major security concerns and evaluate major security difficulties**, all while sticking to the concept of networked security.
- The discussions of ideas on the future of transatlantic relations, as well as European and global security in the twenty-first century, are a focal feature of the conference.
- Senior politicians, diplomats, military and security experts from NATO and the European Union, as well as other countries such as India, China, Japan, Iran and Russia, are invited to discuss current issues in defence and security policies at this conference, which is themed peace through dialogue.
- It is **not a government-sponsored event**. It is just used for debate; there is no authorization for binding intergovernmental decisions.

Source: PIB



6. Asia's biggest Bio-CNG plant 'Gobar-Dhan' in MP's Indore

Topic: Environment and Ecology

In News: Prime Minister has virtually inaugurated Asia's biggest Bio-CNG plant, Gobar-Dhan, in Madhya Pradesh's Indore.

More on the Topic:

- The Bio-CNG plant has been set up based on the concept of waste-to-wealth innovation in India's cleanest city.

- The bio-CNG plant has a total capacity of 550 MT. It will produce CNG with 96 per cent pure methane gas.
- Government is planning to build in 75 major municipal bodies in the next 2 years.
- Galvanising Organic Bio-Agro Resources Dhan (GOBAR-DHAN) scheme focuses on managing and converting cattle dung and solid waste in farms to compost, biogas and bio-CNG.
- The scheme was launched by Ministry of Drinking Water & Sanitation (Now Ministry of Jal Shakti) in 2018 as part of the SBM (Gramin).

Source: Hindu



MCQs:

1. Which of the following statement/s is/are true?

1 Green Hydrogen is produced by splitting water into hydrogen and oxygen using an electrolyzer powered by renewable energy sources such as wind and solar.

2. Green ammonia production is where the process of making ammonia is 100% renewable and carbon-free.

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Ans c

2. Which of the following are tributaries of the Ganga river?

- (a) Harangi, Hemavati, Kabini
- (b) Ghataprabha, the Malaprabha, the Bhima



(c) Pravara, the Purna, the Manjra

(d) Gomti, Son, Gandak

Ans: d

3. PM KUSUM Scheme is associated with?

(a) Women Empowerment

(b) Stressed Asset

(c) Renewable energy

(d) LPG Delivery

Ans: c

4. Which of the following statement/s are true?

1. A neutrino is a fundamental elementary particle.

2. They are produced in high-energy processes such as within stars and in supernovae.

(a) 1 only

(b) 2 only

(c) Both 1 and 2

(d) Neither 1 nor 2

Ans c

5. Seshachalam biosphere reserve is located at?

(a) Andhra Pradesh

(b) Tamil Nadu

(c) Kerala

(d) Telangana

Ans: a