IMPORTANT INTERNATIONAL AFFAIRS

- **Russia's suspension of grain deal**
- **CONTEXT: Russia has suspended its part of the deal allowing Ukraine to ship grain from its Black Sea ports safely amid a month long war, and it appears that the remaining partners are now left to take their chances. A dozen ships had sailed despite initially reporting that more than 200 vessels, many loaded and ready to travel, were stuck after Russia's weekend announcement.**
- **What is Black Sea Grain Initiative?**
- The Black Sea Grain Initiative was an agreement between Russia and Ukraine with Turkey and the United Nations.
- It sought to create a safe passage of food grains exported from Ukraine, which is currently in war with Russia.
- Under this agreement, export of grain, food and fertilizers will be allowed to resume from Ukraine via a "safe maritime humanitarian corridor" from three key Ukrainian ports i.e., Chornomorsk, Odesa, and Yuzhny/Pivdennyi.
- A Joint Coordination Centre (JCC) having representatives from signatories of the Black Sea Grain Initiative was set up to implement this deal.
- **Why was the deal signed?**
- **Such exports are crucial**: Ukraine and Russia are key global suppliers of wheat, barley, sunflower oil and other food to countries in Africa, the Middle East and parts of Asia where many are already struggling with hunger.
- Ukraine exports around 45 million tonnes of grain to the global market each year. However, after Russia launched military campaign in February 2022, Ukraine was left with large amount of grains stored in silos unable to be transported to other parts of the world.
- This has severely affected the global supply of grains. With the energy prices and food prices increasing because of the conflict, many countries, especially those in Africa, were at the brink of famine. The Black Sea Grain Initiative sought to address these issues.
- **What has the deal achieved?**
- By mid-September 2022, over three million tonnes of cargo left Ukraine under this deal. About 51 per cent of the total cargo was corn, 25 per cent was wheat, 11 per cent sunflower products, 6 per cent rapeseed and 5 per cent barley. The rest of the cargo included soya beans and other food commodities. About half of the total cargo went to high-income countries like Spain, Netherlands, Korea, Germany, Ireland and Israel. India received 4 per cent of the total wheat exports from Ukraine since the war broke out
- The grain initiative has been a rare example of cooperation between Ukraine and Russia since Russia's invasion in February. Brokered by the United Nations and Turkey, it has allowed more than 9 million tons of grain in 397 ships to safely leave Ukrainian ports. The grain agreement has brought down global food prices by about 15% from their peak in March 2022, according to the U.N., and the U.N. secretary-general had urged Russia and Ukraine to renew the deal when it expires Nov. 19.
- Following Russia's announcement, wheat futures prices jumped more than 5% on 31st October in Chicago, while key oil futures prices rose in Asian markets. With global markets tight, prices will rise and poorer countries will have to pay more to import grain, experts said.
- Before the grain deal was brokered, the U.S. and Europe accused Russia of starving vulnerable parts of the world by denying exports. Since the deal, Russia has alleged that most of the exported grain was going to Europe instead of the world's hungriest nations.
- The U.N. Conference on Trade and Development, however, said in a report published recently that wheat is mostly going to poorer countries, with nearly 20% of exported wheat going to the least developed nations. Ukraine has said more than 5 million tons have been exported to African and Asian nations, with 190,000 tons of wheat sent to countries that are getting relief from the U.N. World Food Program.
- **What is the current status of the Black Sea Grain Initiative?**
- Black Sea Grain deal was set to expire on November 19, 2022. The renewal negotiations were led by the United Nations throughout October 2022.
- However, Russia pulled out of this agreement on October due to drone attack on its naval ships in the port of Sevastopol.
- Despite Russia withdrawing from the deal, several grain ships continued to depart from ports in Ukraine with support from Turkey and UN. However, it is unclear if this safe passage will remain intact indefinitely.
- **What happens now?**
- Russia has requested a meeting Monday of the U.N. Security Council to discuss the issue while offering to supply up to 500,000 tons of grain "to the poorest countries free of charge in the next four months."

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- According to experts while sanctions on Russia don't affect its grain exports and a parallel wartime deal was meant to clear the way for Moscow's food and fertilizer shipments, some businesses have been wary. Ukraine, the U.S. and its allies again accused Russia of playing "hunger games."
- Developing nations will have to find new suppliers and pay more from countries such as the U.S., Argentina and Australia, where dry conditions or rain are posing problems. But high prices mean producers will plant more, and those not typically big wheat exporters, like Brazil and India, have shipped more. "What the world needs are some really big crops," he said, and with Ukraine having accounted for 10% of world wheat exports, "that's a big hole to build."

PRELIMS

1. Coronal holes

❖ **CONTEXT: Recently, the @NASASun Twitter handle shared an image of the sun seemingly 'smiling'. Captured by the NASA Solar Dynamics Observatory, the image has dark patches on the sun's surface resembling eyes and a smile. NASA explained that the patches are called coronal holes, which can be seen in ultraviolet light but are typically invisible to our eyes**.

❖ **What are coronal holes?**

- These are regions on the sun's surface from where fast solar wind gushes out into space. Because they contain little solar material, they have lower temperatures and thus appear much darker than their surroundings.
- Here, the magnetic field is open to interplanetary space, sending solar material out in a high-speed stream of solar wind. Coronal holes can last between a few weeks to months.
- The holes are not a unique phenomenon, appearing throughout the sun's approximately 11-year solar cycle. They can last much longer during solar minimum – a period of time when activity on the Sun is substantially diminished, according to NASA.

❖ **What do they tell us?**

- "These 'coronal holes' are important to understanding the space environment around the earth through which our technology and astronauts travel," NASA had said in 2016 when coronal holes covering "six-eight per cent of the total solar surface" were spotted.
- While it is unclear what causes coronal holes, they correlate to areas on the sun where magnetic fields soar up and away, without looping back down to the surface as they do elsewhere.
- "Scientists study these fast solar wind streams because they sometimes interact with earth's magnetic field, creating what's called a geomagnetic storm, which can expose satellites to radiation and interfere with communications signals,".

❖ **What happens during a geomagnetic storm?**

- According to the US government agency National Oceanic and Atmospheric Administration, geomagnetic storms relate to earth's magnetosphere – the space around a planet that is influenced by its magnetic field.
- When a high-speed solar stream arrives at the earth, in certain circumstances it can allow energetic solar wind particles to hit the atmosphere over the poles. Such geomagnetic storms cause a major disturbance of the magnetosphere as there is a very efficient exchange of energy from the solar wind into the space environment surrounding earth.
- In cases of a strong solar wind reaching the earth, the resulting geomagnetic storm can cause changes in the ionosphere, part of the earth's upper atmosphere. Radio and GPS signals travel through this layer of the atmosphere, and so communications can get disrupted.

2. Paediatric Rare Genetic Disorders (PRaGeD)

❖ **CONTEXT: The Centre for DNA Fingerprinting and Diagnostics (CDFD), Hyderabad has initiated an inter-disciplinary approach to decode the genetic mutations that causes Pediatric Rare Genetic Disorders (PRaGeD)**

- The PRaGeD is a PAN-India initiative funded by the Department of Biotechnology (DBT), Ministry of Science and technology, Government of India.
- Rare genetic diseases are a global public health concern with 350 million people affected worldwide and about 70 million Indians.
- The Human Genetics and Genomics task force at DBT extensively supports genomics-based strategies for prediction, diagnosis, treatment and prevention of diseases.
- The CDFD was collaborating with pediatrics departments of medical colleges, DBT-UMMID centres, and 15 centres across India to analyse samples from children with rare genetic disorders and their parents.
- The vision of PRaGeD was to create awareness, achieve genetic diagnosis, discover and characterise novel genes, provide counselling, and to develop novel therapies for pediatric rare genetic diseases in India.

❖ **Research analysis**

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- Rare genetic diseases are clinical conditions that are progressive, consistently disabling, life-threatening and heterogeneous in nature,
- India/South Asia was a region of extraordinary diversity, with over 5,000 anthropologically well-defined groups, many of which follow strict endogamy with significant barriers to gene flow, owing to cultural practices that restrict marriage between groups leading to a high prevalence of disease-causing mutations within the community/family, 95 per cent of rare diseases do not have a single FDA approved drug for treatment.
- Scientists at the CDFD will perform high-throughput Whole Exome Sequencing (WES)/ Whole Genome Sequencing (WGS), analysis of sequence data, functional validation of the novel genes/variants, a database of phenotype-genotype to determine which gene/mutation(s) cause rare disease condition, according to a release.

3. **Dogecoin, Dogelon Mars, & Big Eyes Coin**

❖ **Context: Dogecoin, Dogelon Mars and Big Eyes Coin are getting very popular among other cryptocurrencies because of the usage of memes in these cryptos.**

- Dogecoin: Dogecoin was created in 2013. The token was designed to defy the seriousness that defined the crypto market during this time, intentionally going against the standards set by industry giants of the time like Bitcoin.
  - Dogecoin made crypto approachable, with a fun meme image associated with it to encourage Internet users to find out more about the project and get involved.
  - Dogecoin is the 8th most popular cryptocurrency by market capitalization.
- Dogelon Mars: Dogelon Mars is the third most successful meme token on the market by market capitalization. It was launched in 2021.
- Big Eyes Coin: It was launched in 2022. Big Eyes Coin utilises a cat character as the face of the token. The main goal of Big Eyes (BIG) is to shift wealth from the traditional banking system to the DeFi (Decentralised Finance) ecosystem.

4. Zojila Day

❖ **CONTEXT: Zojila Day was commemorated at Zojila War Memorial near Drass on November 1 to celebrate the gallant action by Indian troops in 'Operation Bison' in 1948 which was launched on the icy heights of Zojila pass, the gateway to Ladakh.**

- The commemoration of the day was marked with a solemn wreath-laying by Commander Dras Warriors of the Leh-based Fire and Fury Corps, to pay homage to the gallant bravehearts, who have etched their names in history by liberating the Zojila pass from Pakistani Intruders.
- Zojila day epitomises the indomitable spirit of bravery and 'Never Say Die' attitude of the Indian Army. This battle was also historic for the reason that tanks were used for the first time at such heights.

5. Invasive Plant Species

❖ **CONTEXT: An invasive species, Senna spectabilis, an exotic tree, has taken over between 800 hectares and 1,200 hectares of the buffer zones of the Mudumalai Tiger Reserve (MTR) in the picturesque Nilgiris hill district.**

- Introduced as an ornamental species and for use as firewood from South and Central America, the species has become highly invasive in the Sigur plateau in both the core and buffer zones of the MTR.

❖ **Native species hit**

- Over the last few years, its bright yellow flowers have become more visible across the Tiger Reserve. The invasive weed has a negative effect on local biodiversity, crowding out native species and limiting food availability for wildlife.
- The species seemed to be spreading faster over the last five years. According to officials, policy-level discussions are under way on Tamil Nadu Newsprint and Papers Limited (TNPL) plan to use wood from Senna spectabilis from the MTR for paper-making. The funds so raised would be used in eco-restoration to bring back native species.
- Forest Department was also formulating a 10-year-plan to systematically remove Lantana camara, the other major weed that poses a threat to biodiversity in both the core and buffer zones of the Tiger Reserve.
- Senna spectabilis, along with Lantana camara, is among five major invasive weeds that had taken over vast swathes of the Nilgiris, with wattle being the other major invasive species. Eucalyptus and pine, though exotic, do not spread as quickly as the other species and are considered easier to manage.

❖ **Invasive Alien Species (IAS)**

- An alien species is a species introduced outside its natural past or present distribution; if this species becomes problematic, it is termed an invasive alien species (IAS).
- The Convention on Biological Diversity (CBD) defines IAS as "an alien species whose introduction and spread threaten ecosystems, habitats, or species with socio-cultural, economic and environmental harm and harm to human health".

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- Unintentionally introduced fungal pathogens continue to cause widespread declines in taxa ranging from bats and amphibians to corals and native forests.
- Intentionally introduced feedstock and biofuel crops that go on to invade carry high financial and environmental risk, as realized in Africa and Asia.
- Invasive pines (Pinus species) transform habitats and fire regimes in the biodiverse South African fynbos and Brazilian cerrado.
- IAS are such a problem that Aichi Biodiversity Target 9 and one clause of UN Sustainable Development Goal 15 – Life on Land specifically address the issue.
- Common features of invasive exotics includes the ability to reproduce both asexually and sexually, fast growth, rapid reproduction, high dispersal ability, tolerance of a wide range of environmental conditions, Ability to live off of a wide range of food types

6. <u>Saffron</u>

❖ **CONTEXT: J&K Tourism Department ropes in students and farmers to turn the saffron harvest festival into a tourist experience in the Valley; locals hope to see a 15% increase in yield this year**

- Saffron is a plant whose dried stigmas (thread-like parts of the flower) are used to make saffron spice**.**
- Saffron cultivation is believed to have been introduced in Kashmir by Central Asian immigrants around the 1st Century BCE.
- It has been associated with traditional Kashmiri cuisine and represents the rich cultural heritage of the region.
- It is a very precious and costly product**.**
- In ancient Sanskrit literature, saffron is referred to as 'bahukam'**.**
- It is cultivated and harvested in the Karewa (highlands) of Jammu and Kashmir.
- It rejuvenates health and is used in cosmetics and for medicinal purposes.
- It has been associated with traditional Kashmiri cuisine and represents the rich cultural heritage of the region.

❖ **Cultivation**

- **Season:** In India, saffron Corms (seeds) are cultivated during the months of June and July and at some places in August and September. It starts flowering in October.
- **Altitude:** Saffron grows well at an altitude of 2000 meters above sea level. It needs a photoperiod (sunlight) of 12 hours**.**
- **Soil:** It grows in many different soil types but thrives best in calcareous (soil that has calcium carbonate in abundance), humus-rich and well-drained soil with a pH between 6 and 8.
- **Climate:** For saffron cultivation, we need an explicit climatological summer and winter with temperatures ranging from no more than 35 or 40 degree Celsius in summer to about –15 or –20 degree Celsius in winter**.**
- **Rainfall:** It also requires adequate rainfall that is 1000-1500 mm per annum.

❖ **Major Saffron Producing Regions in India**

- Saffron production has long been restricted to a limited geographical area in the Union territory of Jammu & Kashmir.
- Pampore region, commonly known as Saffron bowl of Kashmir, is the main contributor to saffron production. Pampore Saffron Heritage of Kashmir is one of the Globally Important Agricultural Heritage systems (GIAHS) recognised sites in India.
- Other districts producing saffron are Budgam, Srinagar, and Kishtwar districts.
- Recently, the Kashmir saffron got Geographical Indication (GI) tag status.

❖ **Initiatives to Promote Saffron Cultivation**

- The National Saffron Mission was sanctioned by the central government in the year 2010 in order to extend support for creation of irrigation facilities through tube wells and sprinkler sets which would help in production of better crops in the area of saffron production.
- Recently, the Institute of Himalayan Bioresource Technology (CSIR-IHBT) and the Government of Himachal Pradesh**,** have jointly decided to increase the production of the two spices namely, Saffron and Heeng (asafoetida). Under this plan, IHBT will be introducing new varieties of saffron and heeng from the exporting countries and will be standardized under Indian conditions.

ANSWER WRITTING

Q. Given the diversities among tribal communities in India, in which specific contexts should they be considered as a single category?

- Government of India Act 1935 included members of the community living or dependent on the forest, in a single category called Scheduled Tribe (STs).

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- The tribals in India have a very broad diversity ranging from matriarchal khasis of the Meghalaya and patriarchal tribes of the Rajasthan and Gujrat. They also differ on the basis of the origin like African origin Siddis of Gujarat and indigenous tribes of Andaman and Nicobar like sentinels.
- Apart from the constitutional and legal provisions to include STs in a single category, there are several socio-economic grounds which binds them in a single category. Like:
  - They are usually geographically isolated.
  - They follow similar religious practices like tattoo, amulets, and Jewlery and belief in magic.
  - Usually, they worship their common ancestors and nature worship is common among them.
  - They are mostly dependent on the forest for their livelihood and have unanimity with nature for a well-balanced environment.
  - Their social structure is less stratified compared to caste and have egalitarian structure.
  - They have an animistic belief system.
  - Most of them are territorial groups and dedicated to their own tribe and culture.
  - Most of them are practicing primitive occupations like shifting cultivation, etc.
  - They have most indigenous political organization i.e., the council of the elders like sabhas and samitis of the vedic period.
  - Their society is usually self-reliant and self-sufficient.
  - Most of them are different from mainstream society.
- Dr. Ambedkar had also advocated their distinct socio-religious and cultural practice and demanded to include them in a separate, single and distinct category.

MCQs

1. If a major solar storm (solar flare) reaches the Earth, which of the following are the possible effects on the Earth?
   1. GPS and navigation systems could fail.
   2. Tsunamis could occur at equatorial regions.
   3. Power grids could be damaged.
   4. Intense auroras could occur over much of the Earth.
   5. Forest fires could take place over much of the planet.
   6. Orbits of the satellites could be disturbed.
   7. Shortwave radio communication of the aircraft flying over Polar Regions could be interrupted.

Select the correct answer using the code given below:
   a) 1, 2, 4 and 5 only
   b) 2, 3, 5, 6 and 7 only
   c) 1, 3, 4, 6 and 7 only
   d) 1, 2, 3, 4, 5, 6 and 7

2. Consider the following statements with respect to saffron
   1. The pH level of the soil is an important factor for saffron production.
   2. Areas in Jammu & Kashmir are the only places in India suitable for saffron cultivation.
   3. Kashmiri Saffron was given geographical indication tag by the geographical indications registry in 2008.

Which of the statement/s given above is/are correct?
   a) 1 only
   b) 1 and 2 only
   c) 1, 2 and 3
   d) None of the above

3. The National Mission for Saffron is a launched as a sub-scheme under which of the following?
   a) Krishi sinchai Yojana
   b) Krishi Vikas Yojana
   c) KUSUM scheme
   d) PM Kisan Yojana

4. Consider the following statements:
   1. All alien species are invasive species.
   2. All invasive species are alien spacies.

Select the correct statement/s using codes given below:
   a) 1 only
   b) 2 only
   c) Both 1 and 2
   d) Neither 1 nor 2

5. Which of the following is not an invasive alien species in the Indian context?

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a) Lantana
b) Cynodon
c) Parthenium
d) Eichhornia

6. Terms like Dogecoin, Dogelon Mars and Big Eyes often mentioned in news are related to which of the following?
a) Crypto currencies
b) Central Bank Digital Currencies of USA
c) Mars Mission of JAXA
d) Satellite launch vehicles

7. Consider the following ports recently seen in news
1. Chornomorsk
2. Odesa
3. Yuzhny/Pivdennyi

Arrange the above ports from East to West, and choose the correct answer using the codes given below?
a) 1,2,3
b) 2,3,1
c) 3,1,2
d) 3,2,1

8. Consider the following statements:
1. Black sea is an example of a marginal sea.
2. The Black Sea is connected to the Sea of Marmara by the Strait of Kerch.
3. The Bosphorus Strait connects the Black Sea to the Sea of Azov.

Which of the above-given statement is/are NOT correct?
a) 1 and 3
b) 2 only
c) 2 and 3 only
d) 3 only

9. In the cities of India, which among the following atmospheric gases are normally considered in calculating the value of Air Quality Index?
1. Carbon dioxide
2. Carbon monoxide
3. Nitrogen dioxide
4. Sulphur Dioxide
5. Methane

Select the correct answer using the code given below
a) 1, 2 and 3 only
b) 2, 3 and 4 only
c) 1, 4 and 5 only
d) 1, 2, 3, 4 and 5

10. Consider the following statements regarding rare diseases:
1. Rare diseases are only genetic in origin.
2. 'Matchmaker Exchange', is a platform launched by India to share rare disease data.

Which of the above given statements is/are not correct?
a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 nor 2

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