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**U.P.S.C. - C.S.E.**

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*Success is born of action...*

## Topic 1: ZEBRA FISH

### *Importance for Prelims: Environment*



Scientists at Agharkar Research Institute have used the Zebrafish as a research model and identified genes that can promote heart regeneration. Scientists have sought to decode the heart regeneration processes using this animal model.

- Zebrafish – a tiny freshwater fish barely 2-3 cm long can efficiently regenerate its damaged heart within a short time period.
- Zebrafish is found in the tropical and subtropical regions.
- The fish is native to South Asia's Indo-Gangetic plains, where they are mostly found in the paddy fields and even in stagnant water and streams.
- It is a popular aquarium fish, frequently sold under the trade name Danio.

## Topic 2: ANNAPURNA IDOL

### *Importance for Prelims: Culture*



Prime Minister announced that an ancient idol of the goddess Annapurna, stolen from India about a century ago, is being brought back from Canada.

- This idol was stolen from a temple of Varanasi and smuggled out of the country around 100 years ago somewhere around 1913.
- Annapurna, also spelt Annapoorna, is the goddess of food.
- The 18th-century idol, carved in the Benares style, is part of the University of Regina, Canada's collection at the MacKenzie Art Gallery.
- A few weeks ago, Union Culture Minister Prahlad Patel handed over 13th-century bronze idols of Lord Rama, Lakshmana and goddess Sita, which were repatriated from the UK recently, to the Tamil Nadu government.
- Between 2014 and 2020, the government has been able to retrieve 40 antiquities from various countries; between 1976 and 2014, as per ASI records, 13 antique pieces had been repatriated to India.

## Topic 3: SCO ONLINE INTERNATIONAL EXHIBITION

### *Importance for Prelims: Culture*

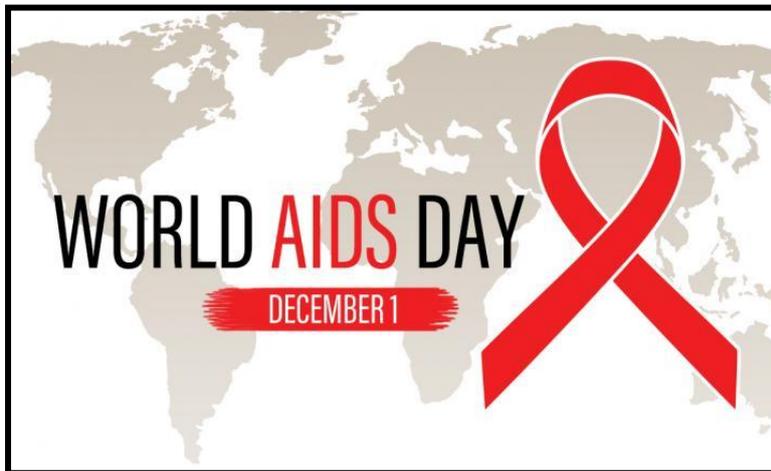


Vice President of India & Chair of the SCO Council of Heads of Government in 2020, launched the first ever SCO Online Exhibition on Shared Buddhist Heritage, during the 19th Meeting of the SCO Council of Heads of Government (SCO CHG).

- This SCO online International exhibition, first ever of its kind, is developed and curated by National Museum, New Delhi, in active collaboration with Shanghai Cooperation Organisation (SCO) member countries.
- The exhibition deploys state of the art technologies like 3D scanning, WebGL platform, virtual space utilization, innovative curation and narration methodology etc.
- Buddhist philosophy and art of Central Asia connects Shanghai Cooperation Organization (SCO) countries to each other.
- The visitors can explore the Indian Buddhist treasures from the Gandhara and Mathura Schools, Nalanda, Amaravati, Sarnath etc. in a 3D virtual format.

## Topic 4: WORLD AIDS DAY

### *Importance for Prelims: Current Events*



World AIDS Day is being observed on December 1 to raise public awareness about Acquired Immuno Deficiency Syndrome, AIDS. The theme this year is ‘Ending the HIV/AIDS epidemic: resilience and impact.’

- World AIDS Day is observed on the 1st of December, every year, since 1988.
- World AIDS Day was the first global health day to be celebrated.
- AIDS is the abbreviation for Acquired Immunodeficiency Syndrome.
- It is a chronic illness, which can also be potentially life-threatening.
- The disease is caused by the human immunodeficiency virus, HIV which affects the human immune system.

### **Additional Information:**

- According to the WHO, In 2019, there were still 38 million people living with HIV infection.
- In 2019, 6.9 lakh people died from HIV-related causes and 1.7 million people were newly infected.
- Since the inception of the National AIDS Control Program in 1992, India has done a commendable job in raising awareness and bringing down the

number of HIV infections.

- India is a **signatory** to the United Nations Sustainable Development Goals and has **committed itself to achieving the target of ending the epidemic of AIDS by 2030.**

## Topic 5: COVID SURAKSHA

*Importance for Prelims: Current events*

**myGov**  
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Government Launches  
**MISSION COVID SURAKSHA**  
to Accelerate Vaccine Development

- ₹900 crore stimulus package for the mission to promote indigenous vaccine development
- The mission envisages COVID-19 vaccine development with end-to-end focus from preclinical through clinical development & manufacturing and regulatory facilitation
- The grant will be provided to the Department of Biotechnology for Research & Development of Indian COVID-19 vaccines
- A total of 10 vaccine candidates have been supported and as on date, 5 vaccine candidates are in the human trial stage

Vaccine  
2019 - nCoV  
Coronavirus

The Government of India (GOI) has announced the third stimulus package of Rs. 900 Crore for the Mission COVID Suraksha- The Indian COVID-19 Vaccin Development Mission.

- This grant will be provided to the Department of Biotechnology (DBT) for Research & Development of Indian COVID-19 vaccines.
- The COVID-19 Vaccine development Mission with end-to-end focus from preclinical development through clinical development and manufacturing and regulator facilitation for deployment would consolidate all available and funded resources towards an accelerated

product development.

- Led by Department of Biotechnology and implemented by a dedicated Mission Implementation Unit at Biotechnology Industry Research Assistance Council (BIRAC), the existing activities under National Bio Pharma Mission (NBM) and Ind-CEPI Mission will provide complementary strengths to this Mission.



Authority of India (IWAI) for regulation and development of Inland Waterways for navigation and shipping.

- Out of the 111, National Waterways declared under the National Waterways Act, 2016, 13 are operational for shipping and navigation and cargo/passenger vessels are moving on them.

### **Important National Waterways:**

- **National Waterway-1:** Allahabad-Haldia stretch of the Ganga-Bhagirathi- Hooghly river (1620 Km) declared as NW in 1986 in the states of Uttar Pradesh, Bihar, Jharkhand and West Bengal.
- **National Waterway-2:** Sadiya-Dhubri stretch of the Brahmaputra river (891 Km) declared as National Waterway in 1988 in the state of Assam.
- **National Waterway-3:** Kollam-Kottapuram stretch of West Coast Canal and Champakara and Udyogmandal canals (205 Km) declared as National Waterway in 1993 in the state of Kerala.
- **National Waterway-4:** Kakinada-Puducherry stretch of canals and Kaluvelly tank, Bhadrachalam-Rajahmundry stretch of river Godavari and Wazirabad- Vijayawada stretch of river Krishna (1078 Km) declared as National Waterway in 2008 in the states of Andhra Pradesh, Tamil Nadu and Union Territory of Puducherry.
- **National Waterway-5:** Talcher-Dhamra stretch of Rivers, Geonkhali-Charbatia stretch of East Coast Canal, Charbatia-Dhamra stretch of Matai river and Mahanadi Delta Rivers (588 Km) declared as National Waterway in 2008 in the states of West Bengal and Orissa.

### **Inland Waterways Authority of India**

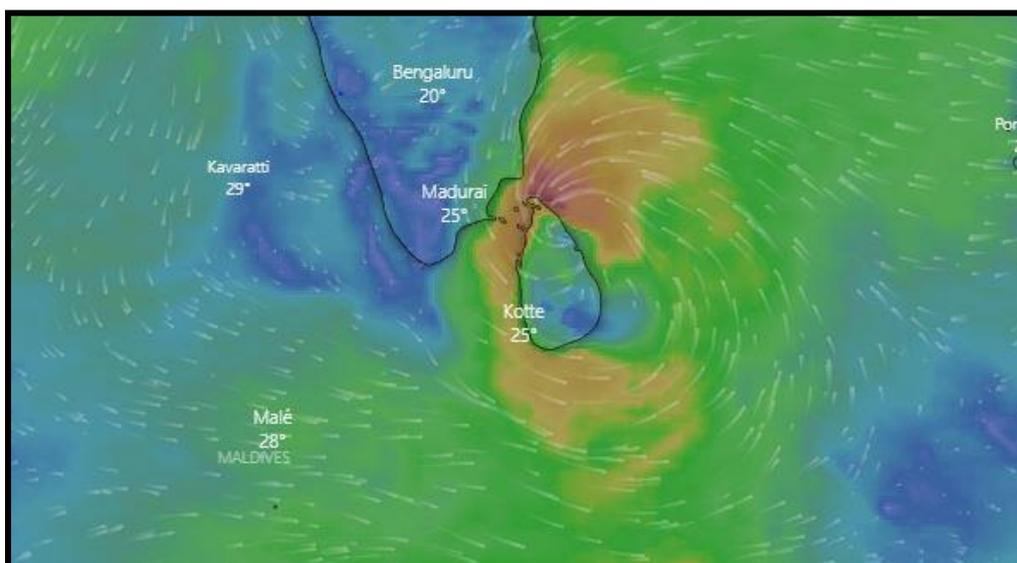
- It is a statutory body that came into existence on 1986 for development and regulation of inland waterways for shipping and navigation.
- It primarily undertakes projects for development and maintenance of IWT infrastructure on national waterways through grants received from the

Ministry of Shipping.

- It is headquartered at Noida with regional offices at Patna (Bihar), Kolkata (West Bengal), Guwahati (Assam) and Kochi (Kerala) and sub-offices at other places throughout India.

## Topic 7: CYCLONE BUREVI

*Importance for Prelims: Geography*



The Deep Depression over southwest Bay of Bengal moved west-north westwards with a speed of 09 kmph during past six hours, intensified into Cyclonic Storm ‘Burevi’.

- The India Meteorological Department (IMD) announced that a cyclone brewing in the Bay of Bengal is likely to affect Tamil Nadu and Kerala, less than a week after cyclone Nivar wreaked havoc in the southern

states.

- The cyclone will cross the Sri Lanka coast on December 2 and bring heavy rain over Tamil Nadu and Kerala.
- Due to upwelling caused by nivar cyclone , there is high possibility that Burevi cyclone will not strengthen beyond the intensity of cyclonic storm.
- When consecutive cyclonic systems develop in the same region of the ocean , the predecessor system leads to upwelling in ocean that is cooler waters from lower part of the ocean are pushed towards the surface part of the ocean which leads to decrease in temperature.
- In the absence of warm sea conditions , any cyclone will not have enough fuel to intensify beyond cyclonic storm.
- IMD has predicted that Burevi will remain as a cyclonic storm till December 5, before it weakens into deep depression.

## Topic 8: XP 100

### *Importance for Prelims: Economy*



Indian Oil launched a new premium grade petrol – Octane 100.

### **Concept:**

- Branded as XP100, the premium grade petrol was launched across ten cities by Minister of Petroleum and Natural Gas.
- The technology for India's first octane petrol has been indigenously created by Indian Oil Research and Development.
- The availability of XP100 puts India in an elite group of countries, having access to such high-quality oil. The petrol will provide high quality and power to the engine.
- Indian Oil plans to roll-out XP100 premium grade petrol in 15 identified cities across the country in two phases.

## Topic 9: LOK VIRASAT

### *Importance for Prelims: Culture*

Films Division (FD) has organised Lok Virasat, a festival of films on folk art and painting.

- An exclusive bouquet of documentary films on folk art and paintings – Lok Virasat – is being showcased on FD website and You Tube channel.
- The films being streamed include: The Kingdom of God , on the great Indian heritage of art and culture with focus on various folk art traditions, **Bhavai**– Fading Memories, a film on Bhavai – a folk art of **Gujarat**, **Naman** – Khele, a film on the ancient folk art performed in Ratnagiri, **SahiJata**, The Fusion Cult, a film on the unique fusion of music and music in the form of folk art on the back-drop of the **ancient Orissa town of Puri**. **Therukoothu** : Dancing For Life , a film depicting the age old **Tamil folk art**.

## Topic 10: BRAHMAPUTRA FLOODING AND TREE RINGS

*Importance for Prelims: Environment*



Destructive flooding of the Brahmaputra will probably be more frequent than previously estimated, even without factoring in the effects of human-driven climate change, says a new study which assembled a chronology of the river's flow for the last seven centuries.

- In the current study, **based on the tree rings data**, they said the earlier estimates likely fall short by about 40 per cent.
- The scientists also looked at data from the rings of ancient trees sampled at 28 sites in Tibet, Myanmar, Nepal and Bhutan — at sites within the Brahmaputra watershed.
- Since the rings grow wider when the soil moisture is high, the researchers could indirectly piece together rainfall and resulting river runoff during these years.

## Topic 11: SESSIONS OF PARLIAMENT

### *Importance for Prelims: Polity*

Budget Session	Monsoon Session	Winter Session
<ul style="list-style-type: none"> <li>• It is conducted from January to April.</li> <li>• The session witnesses the introduction of Budget by FM.</li> </ul>	<ul style="list-style-type: none"> <li>• It is conducted from July to September.</li> <li>• This session is dedicated for discussions on matters of public interest.</li> </ul>	<ul style="list-style-type: none"> <li>• It is conducted from December to January</li> <li>• This is the shortest session.</li> </ul>

Farmers in delhi protest is demanding for a special session of parliament.

- Under Article 85, the Houses of Parliament shall be summoned in such a manner that six months shall not lapse between two sessions of Parliament.
- By convention, the Parliament meets in three regular sessions in a calendar year apart from the special sessions.
- The regular and special sessions of Parliament are **convened by the President on the advice of Council of Ministers**. However, if the President thinks that the time period of six months may expire and Union Council of Ministers has not asked him to call the session of Parliament, then the President may convene the session of Parliament at his own discretion.
- As per convention, there are three regular sessions of Parliament:

### **Regular sessions of parliament**

- **Budget session:** It starts with an address by the President to a joint sitting of both the houses of Parliament.
- It is in this session that the budget is presented and passed.

- It is the longest and most important of the three sessions.
- It generally begins in the month of February and lasts till third week of May.
- From year 2017, the budget session has been preponed, as the government has decided to introduce budget on 1st February every year.
- **Monsoon Session:** It is held in the month of July-September. It is the second longest session of the Parliament.
- **Winter Session:** It is held in the month of November-December and it is the shortest of the three sessions.
- **Special Session of Parliament** It is held in order to transact a particular business as mentioned in the notice of invitation sent to the members of parliament and in this session no other business is taken up for consideration.
- It may be held within or outside the regular session of Parliament.
- Apart from the special session of Parliament, there is a special session of Lok Sabha under Article 352(8) inserted by 44th Amendment Act.
- Special session of Lok Sabha can take place if not less than one-tenth members of Lok Sabha give in writing to the President (if Lok Sabha is not in session) or to the speaker (if Lok Sabha is in session), about an intention to move a resolution for disapproval of continuance of national emergency.
- If majority of the members present and voting disapprove the national emergency, then national emergency comes to an end.

## Topic 12: WORLD MALARIA REPORT 2020

*Importance for Prelims: Current Events*

**WHO World Malaria Report 2020**

World Health Organization

**India continues to make Impressive Gains in reduction of Malaria Burden**

- India the only high endemic country which has reported a decline of 17.6% in 2019 over 2018
- India has sustained Annual Parasitic Incidence (API) of less than one since 2012

The World Malaria Report (WMR) 2020 released by WHO indicates that India has made considerable progress in reducing its malaria burden.

- India is **the only high endemic country which has reported a decline of 17.6% in 2019** as compared to 2018.
- The Annual Parasitic Incidence (API) reduced by 27.6% in 2018 compared to 2017 and by 18.4% in 2019 as compared to 2018.
- India has sustained API less than one since year 2012.
- India has also contributed to the largest drop in cases region-wide, from approximately 20 million to about 6 million.
- The percentage drop in the malaria cases was 71.8% and deaths was 73.9% between 2000 to 2019.
- India achieved a reduction of 83.34% in malaria morbidity and 92% in malaria mortality between the year 2000 and 2019, thereby achieving Goal 6 of the Millennium Development Goals (50-75% decrease in case

incidence between 2000 and 2019).

- States of Odisha, Chhattisgarh, Jharkhand, Meghalaya and Madhya Pradesh disproportionately accounted for nearly 45.47 percent of malaria cases and 70.54 percent of falciparum Malaria cases in 2019. 64% of malaria deaths were also reported from these states.

### **Additional Information**

- WHO has initiated **the High Burden to High Impact (HBHI) initiative** in 11 high malaria burden countries, including India.
- Implementation of HBHI initiative has been started in four states i.e.
- West Bengal and Jharkhand, Chhattisgarh and Madhya Pradesh in July, 2019.
- National Framework for Malaria Elimination (NFME) was launched in India in 2016 by the Ministry of Health and Family Welfare.
- National Strategic Plan for Malaria Elimination (2017-22) was launched by the Health Ministry in July, 2017 which laid down strategies for the next five years that is upto 2022.

## Topic 13: THEREMIN

### *Importance for Prelims: Culture*



Theremin instrument turned 100 years old this year.

- The theremin is an **electronic musical instrument** controlled without physical contact by the thereminist (performer).
- The instrument was invented in 1920. It is named after its inventor, Leon Theremin, who patented the device in 1928.
- The instrument's controlling section usually consists of two metal antennas that sense the relative position of the thereminist's hands and control oscillators for frequency with one hand, and amplitude (volume) with the other.
- The electric signals from the theremin are amplified and sent to a loudspeaker.

## Topic 14: ARECIBO TELESCOPE

*Importance for Prelims: Science & tech*



One of the world's largest telescopes collapsed at Puerto Rico's Arecibo Observatory on Tuesday.

It had been in operation for 57 years, but shut after engineers warned of the structure's deterioration earlier this year.

- The Arecibo Telescope has one of the most powerful radar employed to observe asteroids, planets, and ionosphere.
- The telescope has discovered the first exoplanets, prebiotic molecules in distant galaxies and first millisecond Pulsar.
- Prebiotic molecules are matter that lead to the origin of life.
- The Telescope had served as a hub in the search of extra-terrestrial life and has picked up several radio signals from alien civilisations.
- It has played a major role in tracking killer asteroids heading towards the earth.

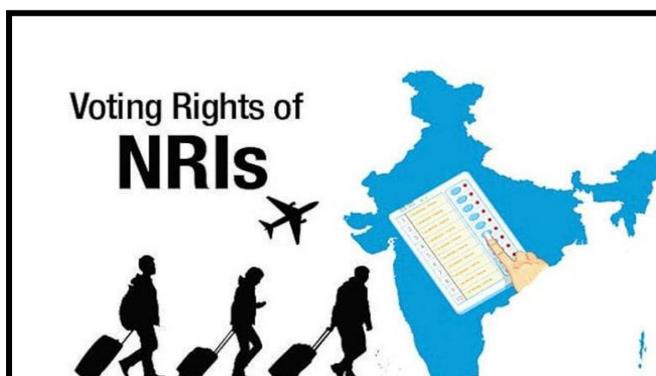
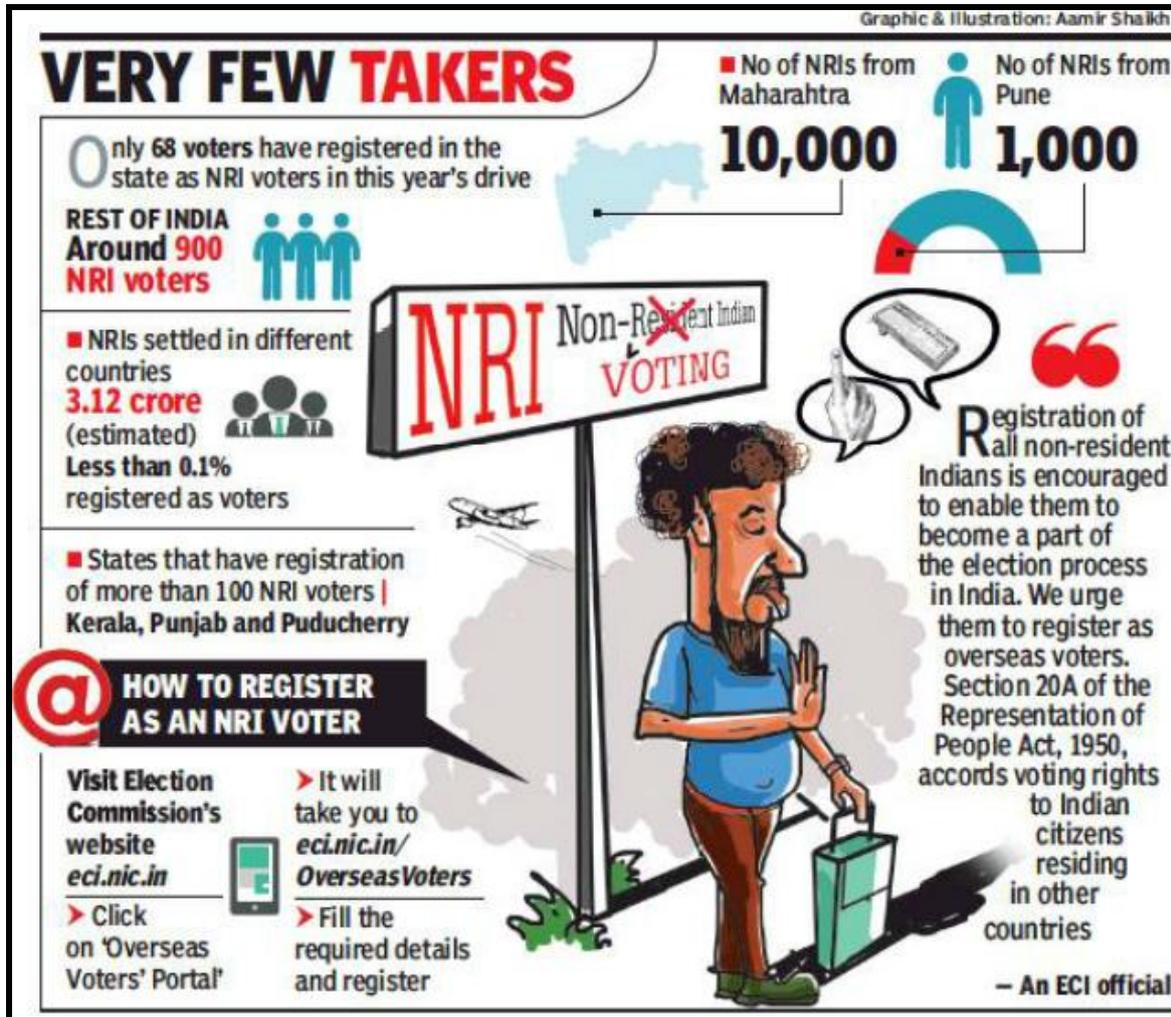
- In 1993, the scientists Joseph Taylor and Russell Hulse were awarded the Nobel Prize in physics.
- With the help of the observatory they monitored a binary Pulsar.
- It was the first evidence for the existence of gravitational waves.
- The telescope had become a symbol of Puerto Rico.
- It drew more than 90000 visitors every year.

### **Why did the Arecibo Telescope collapse?**

- On November 19, 2020, the National Science Foundation of the United States recommended controlled demolition of the telescope as two cables broke off threatening the survival of the observatory.
- The foundation came to this conclusion after several assessments found that the telescope structure is in danger of catastrophic failure and the cables of the telescope are no longer capable of carrying its weight.
- The receiver platform of the telescope alone weighs 900 tonnes.
- The receiver platform collapsed 450 feet into the 1000 feet wide dish.
- Earlier, the telescope had survived several hurricanes and earthquakes.

## Topic 15: NRI VOTING

Importance for Prelims: Polity



Election Commission (EC) approached the Law Ministry to permit NRIs to cast their votes from overseas through postal ballots.

- According to a UN report of 2015, India's diaspora population is the largest in the world at 16 million people.

- Registration of NRI voters, in comparison, has been very low: a little over one lakh overseas Indians registered as voters in India, according to the EC.
- In last year's Lok Sabha elections, roughly 25,000 of them flew to India to vote.
- An NRI can vote in the constituency in which her place of residence, as mentioned in the passport, is located.
- She can only vote in person and will have to produce her passport in original at the polling station for establishing identity.
- Voting rights for NRIs were introduced only in 2011, through an amendment to the Representation of the People Act 1950.
- According to the EC proposal, any NRI interested in voting through the postal ballot in an election will have to inform the Returning Officer (RO) not later than five days after the notification of the election.
- On receiving such information, the RO will dispatch the ballot paper electronically.
- The NRI voters will download the ballot paper, mark their preference on the printout and send it back along with a declaration attested by an officer appointed by the diplomatic or consular representative of India in the country where the NRI is resident.

### **Postal Ballots System**

- Ballot papers are distributed electronically to electors and are returned to the election officers via post.
- Currently, only the following voters are allowed to cast their votes through postal ballot:
- Service voters (armed forces, the armed police force of a state and government servants posted abroad), Voters on election duty, Voters above 80 years of age or Persons with Disabilities (PwD), Voters under

preventive detention.

- The exception to the above-mentioned category of voters is provided under Section 60 of the Representation of the People Act, 1951.

## Topic 16: MALAYAN GIANT SQUIRREL

*Importance for Prelims: Environment*



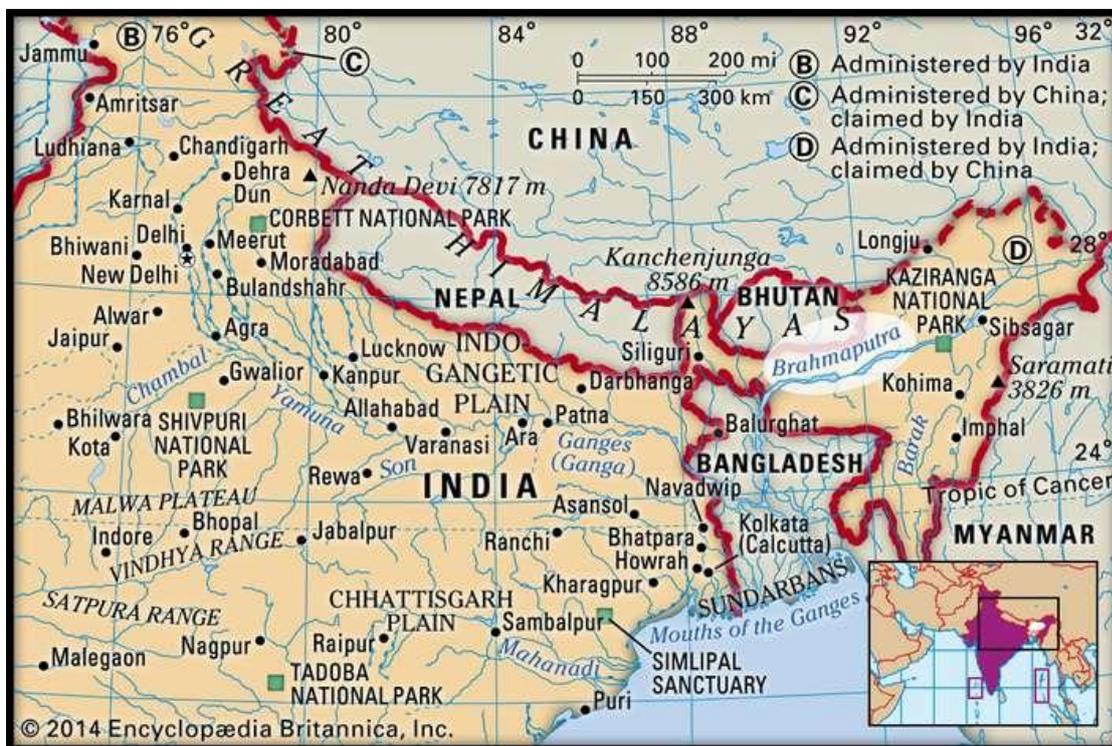
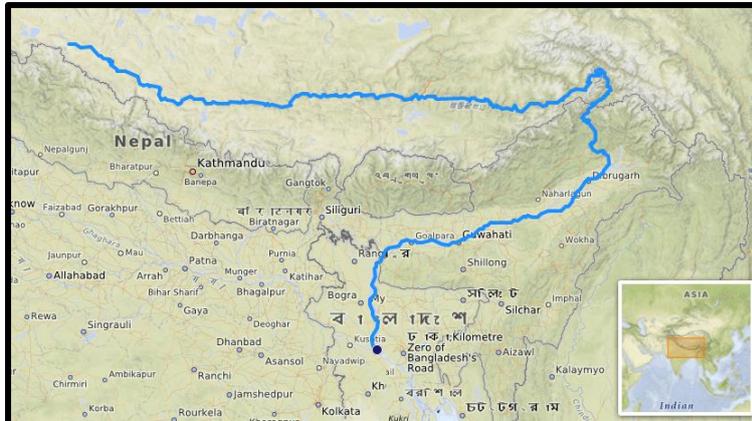
A first-of-its-kind study by the Zoological Survey of India (ZSI) under the Union Ministry of Environment, has projected that numbers of the Malayan Giant Squirrel (*Ratufa bicolor*) could decline by 90 per cent in India by 2050.

- The Malayan Giant Squirrel, one of the world's largest squirrel species that has a dark upper body, pale under parts, and a long, bushy tail, is currently found in parts of West Bengal, Sikkim, Assam, Arunachal Pradesh, Meghalaya, and Nagaland.
- Destruction of its habitat could restrict the squirrel to only southern Sikkim and North Bengal by 2050, according to the ZSI.
- A large tree squirrel that is considered to be a **“forest health indicator species”** is disappearing, and may by the middle of this century no be longer found in the forests of India's Northeast to which it is native.
- According to the study, the Malayan Giant Squirrel and its habitat are under threat from deforestation, fragmentation of forests, crop cultivation and over-harvesting of food, illegal trade in wildlife, and hunting for consumption.

- Slash-and-burn jhum cultivation in many areas of the Northeast contribute to destruction of its habitat.
- India is home to three giant squirrel species; the other two – Indian Giant Squirrel and Grizzled Giant Squirrel – are found in peninsular India.

## Topic 17: BRAHMAPUTRA RIVER

### *Importance for Prelims: Geography*



India on Thursday said it “carefully monitors all developments on the Brahmaputra” river, even as Beijing said it was its “legitimate right” to develop hydro power projects.

- Brahmaputra river system is one of the largest rivers in the world.
- In the Tibet region, it is known by the name of YarlungTsangpo.
- It enters by the names of Siang and Dihang in India. And after it is joined

by its two main tributaries, the Dibang and the Lohit, it is known by the name of Brahmaputra.

- It flows in Bangladesh by the name of Jumna. Finally, it merges with the Ganga river.

### **Brahmaputra River System**

- The world's largest riverine island, Majuli Island is on the Brahmaputra river in the state of Assam.
- Important cities along Brahmaputra are Dibrugarh, Pasighat, Neamati, Tezpur and Guwahati.
- Source of origin: The Brahmaputra river rises from Chemayundung glacier of the Kailash range near the Mansarovar Lake to the north of the Himalayas in the southwest Tibet region.
- Confluence of Mouth: The Brahmaputra drains into the Bay of Bengal before forming a huge delta along with the Ganga.

### **Course of the Brahmaputra river**

- In Tibet, it runs parallel to the Himalayas for about 1,200 km.
- It turns into the south and creates a deep gorge through the Himalayas near Namcha Barwa and enters India under the name of the Dihang.
- Near Sadia, it receives the Dibang coming from the north and the Lohit coming from the east and enters the Assam valley where it is called the Brahmaputra.
- It flows in the west direction up to Dhubri and further below, it runs to the south and enters Bangladesh.
- The Brahmaputra receives numerous tributaries in the Assam valley.
- The number of streams joining the Brahmaputra on its right-bank is greater than that of those joining it on the left-bank. Most of the tributaries are large streams and they pour great quantities of water in the Brahmaputra.

- During the rainy season, it is 8 km broad, slow-moving and heavily laden with silt.
- Its channel is braided.
- It is notorious for floods and erosion of its banks.
- Recurrent floods not only hampers the navigation through the river but also the establishment of large towns on its banks.

## **Primary Tributaries of the Brahmaputra River**

### **The Dhansiri River**

- It is the left-bank tributary of the Brahmaputra river. It rises from Liasang peak of Nagaland.
- It is the main river of the Golaghat district of Assam and the Dimapur district of Nagaland.

### **The Lohit River**

- It is an important left-bank tributary of the Brahmaputra river.
- It rises in the eastern Tibet region.
- The Lohit river flows through the Mishmi Hills.
- It joins the left bank of the Brahmaputra at Sadia town in the state of Arunachal Pradesh.
- The newly constructed massive Dholā-Sadia bridge or the Bhupen Hazarika bridge spans the Lohit river.

### **The Dibang River**

- It is the left-bank tributary of the Brahmaputra river.
- It is one of the principal tributaries of the Brahmaputra river.
- It flows through the states of Arunachal Pradesh and Assam.

### **The Subansiri River**

- It is the right-bank tributary of the Brahmaputra river.
- It rises in the Tibet region in the Himalayas.

- It flows east and southeast through the Lower Subansiri district in Arunachal Pradesh, and then south to the Assam valley, where it joins the rightbank of the Brahmaputra river in the Lakhimpur district of Assam.
- The Subansiri River is known as the Gold River by the locals.
- This river is famous all over the world for its gold dust.

### **The Kameng River**

- It is the right-bank tributary of the Brahmaputra river.
- It rises in the Tawang district in the eastern.
- The **Kaziranga National Park** and the **Pakkhui Wildlife Sanctuary** are located near the Kameng river.

### **The Manas River**

- It is the right-bank tributary of the Brahmaputra river.
- It is a trans-boundary river in the Himalayan foothills between southern Bhutan and India.
- The Manas river flows through Bhutan and Assam in India before it joins the right-bank of the Brahmaputra river.

### **The Sankosh River**

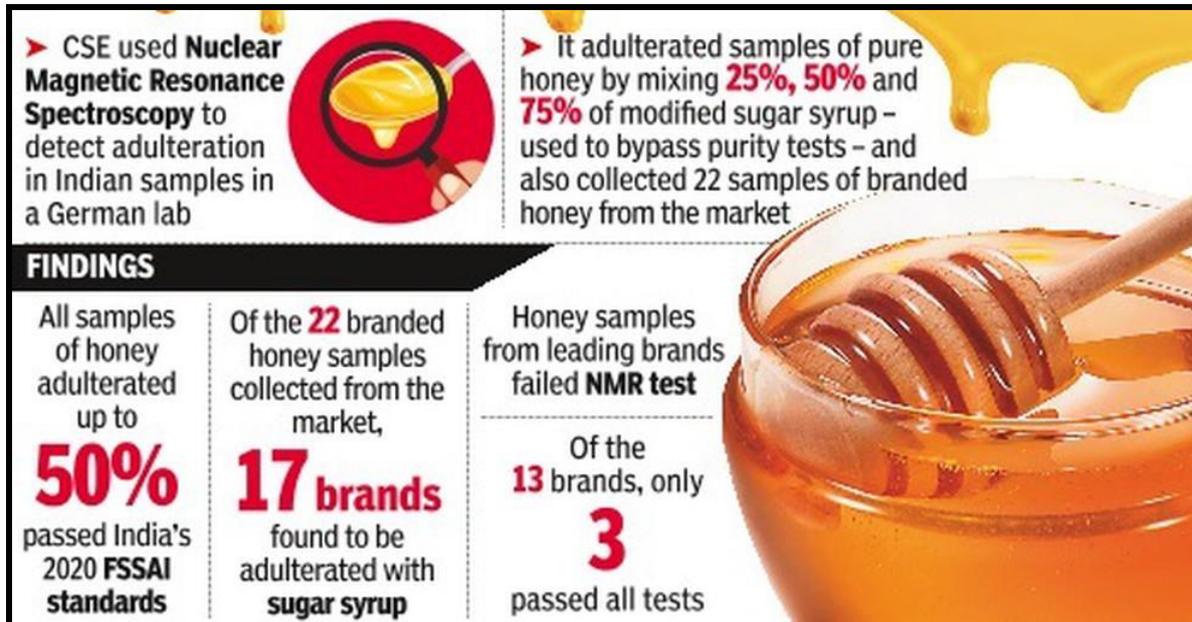
- It is the right-bank tributary of the Brahmaputra river.
- It is a trans boundary river and it flows through Bhutan, India, and Bangladesh.
- It rises in the northern Bhutan region

### **The Teesta River**

- It is the right-bank tributary of the Brahmaputra river.
- The Teesta rises from Zemu glacier in Kanchenjunga massif in Sikkim.
- The Teesta river drains the entire state of Sikkim and a part of Darjeeling Hills.
- It is known as the lifeline of Sikkim.

## Topic 18: NUCLEAR MAGNETIC RESONANCE TEST

*Importance for Prelims: Science & tech*



Honey marketed by prominent Indian brands failed a key test of purity, the Centre for Science and Environment (CSE) has claimed, citing an investigation it conducted.

- Current regulations specify around 18 parameters that honey must comply with for producers to label it ‘pure honey’.
- Most brands passed muster but when subjected to one test, called Nuclear Magnetic Resonance (NMR) that was done at a lab in Germany, only three brands passed:
- Saffola, MarkfedSohna and Nature’s Nectar.
- There were often multiple samples tested for each brand.

### **Additional Information**

- Nuclear Magnetic Resonance (NMR) Test can ascertain the composition of a product at the molecular level)
- The NMR test is not required by Indian law for honey that is being marketed locally but is needed for export.

## Topic 19: INDIA'S FIRST HOME FOR TRANSGENDER CHILDREN

*Importance for Prelims: Current events*

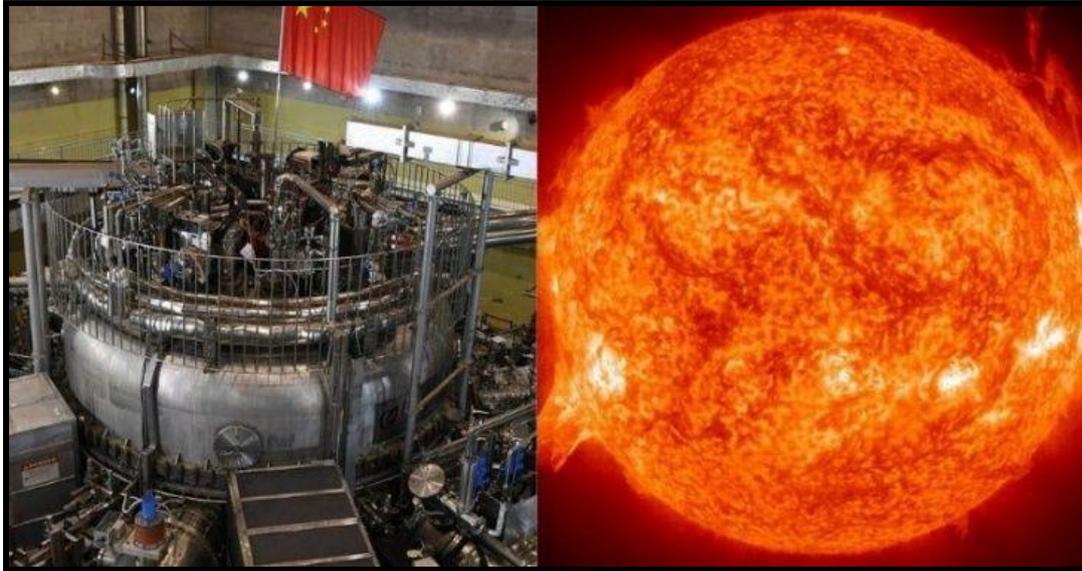


India's first homes for transgender children in need of care and protection will soon be established in Bengaluru. Two government-run homes for transgender children will be established in Bengaluru Urban.

- The Ministry of Women and Child Development gave its nod for the project last week.
- Many transgender children in State-run children's homes for girls or boys were not comfortable.
- It is essential that a home is established for transgender children as they face a lot of stigma and abuse. Establishing a separate home and giving them attention and care at a young age will help address some of their concerns.

## Topic 20: ARTIFICIAL SUN

### *Importance for Prelims: International Events*



China successfully powered up its “artificial sun” nuclear fusion reactor for the first time, state media reported Friday, marking a great advance in the country’s nuclear power research capabilities

- The artificial Sun (not to be confused with the ‘artificial moons’ China intends to send up to space soon), is a popular name given to one of the most promising nuclear fusion experiments to date.
- Designed to replicate the process our Sun uses to generate energy, researchers set up the **Experimental Advanced Superconducting Tokamak (EAST)** fusion reactor in 2006.
- A ‘**Tokamak**’ is a reactor design that resembles a donut — a donut that generates **powerful magnetic forces to contain unimaginably hot plasma inside the reactor during nuclear fusion.**
- The walls of a tokamak are built to absorb the massive amounts of heat from the continuous splitting of atoms in the reactor’s core.
- The artificial sun’s plasma is mainly composed of electrons and ions, and the country’s existing Tokamak devices have achieved an electron temperature of over 100 million degrees C in its core plasma, and an ion

temperature of 50 million C, and it is the ion that generates energy in the device.

- The HL-2M Tokamak will be able to achieve an ion temperature of 100 million degrees Celsius, about seven times hotter than the real Sun's ion temperature.
- The process of nuclear fusion, where two hydrogen atoms combine in a reaction that produces an enormous amount of energy, is often called the 'great white whale' of global energy.
- Nuclear reactors like EAST are a means to exactly that: an almost infinite supply of energy that is clean.

## Topic 21: PASSEX

### *Importance for Prelims: Defence*



**What is a**

A PASSEX is an exercise conducted between two or more navies which consists of navigational and communication drills as ships coordinate manoeuvres alongside and around each other. Some of the drills include flashing light, semaphore and flag hoisting.

**Passing**

Passing exercises increase the operational readiness and interoperability amongst participating ships.

**Exercise**

In addition to ship manoeuvres, a PASSEX can also include various drills such as man overboard, boarding, cross-deck flight operations, division tactics, or communication exercises.

**(PASSEX)?**

The Indian Navy (IN) is undertaking a Passage Exercise (PASSEX) with Russian Federation Navy (RuFN) in the Eastern Indian Ocean Region (IOR) from 4 to 5 December 2020.

- PASSEXs are **conducted regularly by IN with units of friendly foreign navies**, whilst visiting each other's ports or during a rendezvous at sea.
- This exercise, being conducted in the Eastern Indian Ocean Region, reflects the strong long-term strategic relationship between the two countries and particularly, defence cooperation in the maritime domain.
- This exercise is being conducted on the occasion of 'Navy Day' of the IN on 4<sup>th</sup> December, which emphasizes the strong bonds of friendship shared between the two friendly militaries.
- This PASSEX would be another step towards strengthening Indo-Russian defence relations.

- The two navies have built a robust relationship through regular exercises such as INDRA Navy conducted biennially, with the last edition held in the Northern Indian Ocean Region from 4 to 5 September 2020.
- The exercise is aimed at enhancing interoperability, improving understanding and
- imbibing best practices between both the friendly navies, and would involve advanced surface and anti-submarine warfare exercises, weapon firings, seamanship exercises and helicopter operations.

## Topic 22: FSSAI GUIDELINES

### Importance for Prelims: Current Events



(Please Mention Your License no.) Restaurant

License No. \_\_\_\_\_

### With Us You Will Get Safe Food

#### We Follow These 12 Golden Rules

Hygiene Rule Codes	Hygiene Rule Codes
<b>1</b> Keep premise clean and have regular pest control 	 Wear clean clothes/ uniform <b>7</b>
<b>2</b> Use potable water for food preparation 	 Wash hands before & after handling food and after using toilets, coughing, sneezing, etc. <b>8</b>
<b>3</b> Cook food thoroughly. Keep hot food above 60°C and cold food below 5°C 	 Use water proof bandage to cover cuts or burn wounds <b>9</b>
<b>4</b> Store veg & non veg food, raw & cooked food in separate containers 	 Do not handle food when unwell <b>10</b>
<b>5</b> Store cold food below 5°C and frozen products at -18°C or below 	 Use clean and separate dusters to clean surfaces and wipe utensils <b>11</b>
<b>6</b> Use separate chopping boards, knives, etc. for raw/cooked & veg/non veg food 	 Keep separate & covered dustbins for food waste <b>12</b>

**If any concern**

 Call toll free  
**1800 112 100**

 SMS or Whatsapp  
**9868686868**

Always quote FSSAI Number for quick action

**Give your Feedback to Company Name**

**(Company Name)**

**(Contact Details)**   


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 Food Safety and Standards Authority of India

 [fssaiindia](mailto:fssaiindia)

From January 1, 2021 packaged drinking water players in the country will to need to ensure that their products contain minerals such as calcium and magnesium in line with the limits set by the food safety authority.

- Earlier this year, the Food Safety and Standards Authority of India

(FSSAI) had decided to extend the deadline for implementation of these standards for packaged drinking water to July 1 which was further extended to January 1, 2021 due to the pandemic.

- According to the Food Safety and Standards (Food Products Standards and Food Additives) fourth Amendment Regulations, 2019, the mandatory requirement of calcium and magnesium in packaged drinking water has been set at 20-75 mg/litre and in the range of 10-30 mg/litre respectively.
- FSSAI brought in these amendments in response to a direction from the National Green Tribunal last year.

### **Food Safety and Standards Authority of India (FSSAI)**

- The FSSAI is an autonomous body established under **the Ministry of Health & Family Welfare, Government of India.**
- It has been **established under the Food Safety and Standards Act, 2006** which is a consolidating statute related to food safety and regulation in India.
- It is responsible for protecting and promoting public health through the regulation and supervision of food safety.
- It is headed by a non-executive Chairperson, appointed by the Central Government, either holding or has held the position of not below the rank of Secretary to the Government of India.

## Topic 23: KHUDAI KHIDMATGARS

### *Importance for Prelims: History*

- The Khudai Khidmatgar was a non-violent movement against British occupation of the Indian subcontinent.
- It was **led by Abdul Ghaffar Khan**, a Pashtun freedom fighter, in the North-West Frontier Province.
- Over time, the movement acquired a more political colour, leading to the British taking notice of its growing prominence in the region.
- Following the arrest of Khan and other leaders in 1929, the movement formally joined the Indian National Congress after they failed to receive support from the All- India Muslim League.
- Members of the Khudai Khidmatgar were organised and the men stood out because of the bright red shirts they wore as uniforms, while the women wore black garments.

### **QissaKhwani Bazaar massacre**

- Abdul Ghaffar Khan and other leaders of the Khudai Khidmatgar were arrested on April 23, 1930 by British police after he gave a speech at a gathering in the town of Utmanzai in the North-West Frontier Province.
- Khan's arrest spurred protests in neighboring towns, including Peshawar.
- Protests spilled into the QissaKhwani Bazaar in Peshawar on the day of Khan's arrest.
- British soldiers entered the market area to disperse crowds that had refused to leave.
- In response, British army vehicles drove into the crowds, killing several protesters and bystanders.
- In August 1931, the Khudai Khidmatgar aligned themselves with the Congress party, forcing the British to reduce the violence they were

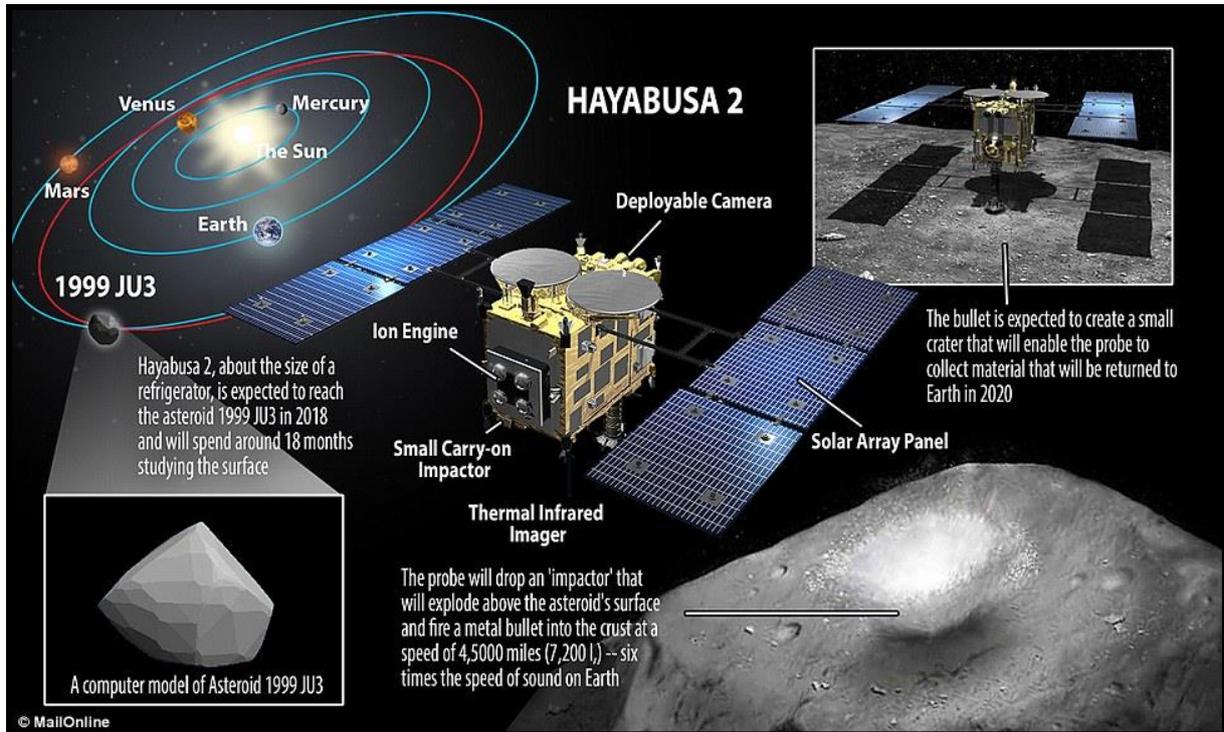
perpetrated on the movement.

### **Post Independence:**

- The KhudaiKhidmatgar opposed Partition, a stance that many interpreted as the movement not being in favour of the creation of the independent nation of Pakistan.
- Post 1947, the KhudaiKhidmatgar slowly found their political influence decreasing to such an extent that the movement and the massacre 90 years ago in the QissaKhwani Bazaar has been wiped out from collective memory.

## Topic 24: HAYABUSA2 MISSION

*Importance for Prelims: Science & tech*



Six years after Japan's Hayabusa2 mission was launched, it is set to return back to Earth on December 6 carrying with it samples from the **one-kilometre wide Ryugu asteroid that orbits the Sun.**

- The Hayabusa2 mission was launched in December 2014 when the spacecraft was sent on a six-year-long voyage to study the asteroid Ryugu and collect samples that it is now bringing back to the Earth.
- The mission is similar to NASA's OSIRIS-REX mission that brought back samples from asteroid Bennu late in October.
- According to the Japanese Aerospace Exploration Agency (JAXA), this is the first time that a probe has visited a celestial body that is under 100 metres in diameter.

### Additional Information

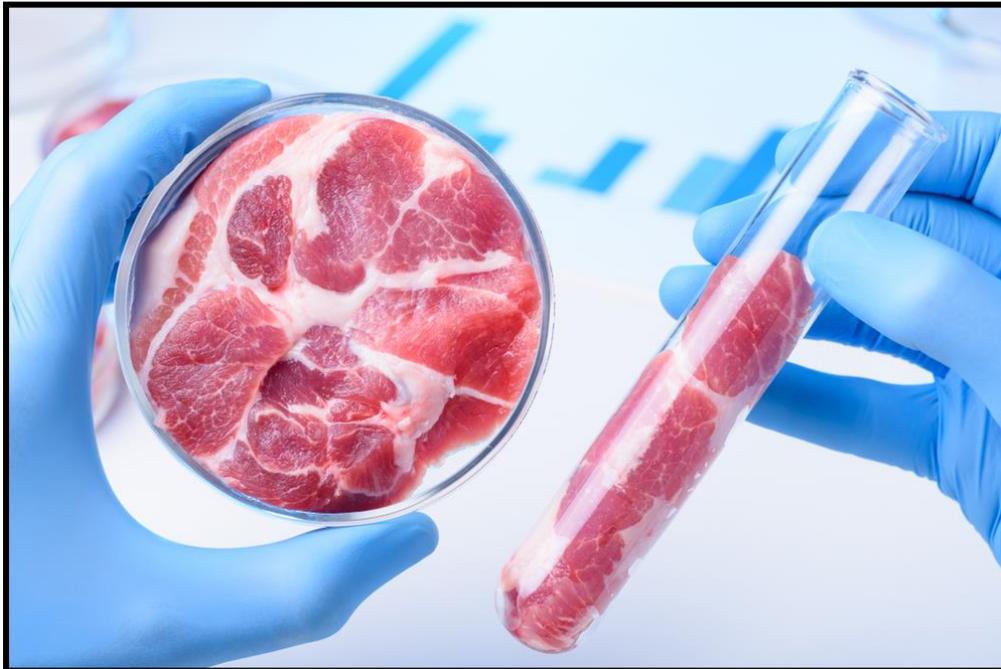
- Hayabusa2's predecessor, the Hayabusa mission brought back samples from the asteroid Itokawa in 2010.

**Ryugu is classified as a Potentially hazardous asteroids (PHAs).**

- It was discovered in 1999 and was given the name by the Minor Planet Center in 2015.
- It is 300 million kilometres from Earth and it took Hayabusa2 over 42 months to reach it.

## Topic 25: LAB-GROWN MEAT

*Importance for Prelims: Science & tech*



The Singapore Food Agency (SFA) approved this week the sale of a lab-grown meat product. This is the first time cultured meat has been cleared for sale anywhere in the world. The product approved by the SFA is cultured chicken, produced by US-based East Just.

### **How is lab-grown or cultured meat different from plant-based meat?**

- The latter is made from plant sources such as soy or pea protein, while cultured meat is grown directly from cells in a laboratory.
- Both have the same objective: to offer alternatives to traditional meat products that could feed a lot more people, reduce the threat of zoonotic diseases, and mitigate the environmental impact of meat consumption.
- In terms of cellular structure, cultured or cultivated meat is the same as conventional meat — except that cultured meat does not come directly from animals.

### Benefits:

- According to the Good Food Institute (GFI)'s 2019 State of the Industry Report on cultivated meats, compared to conventional meat, cultivated meat could reduce land use by more than 95%, climate change emissions by 74-87% and nutrient pollution by 94%.
- Since cultivated meat is created in clean facilities, the risk of contamination by pathogens such as salmonella and E coli, which may be present in traditional slaughterhouses and meat-packing factories, is significantly reduced.
- It does not require antibiotics either, unlike animals raised for meat, thereby reducing the threat posed to public health by growing antibiotic resistance.

## Topic 26: BAN ON E-CIGARETTE

*Importance for Prelims: Economy*

<b>CAUSE FOR CONCERN</b>	
<ul style="list-style-type: none"> <li>➤ Electronic Nicotine Delivery Systems (ENDS) contain nicotine solution, which is highly addictive</li> <li>➤ ENDS contain flavouring agents and vapourizers, which are also harmful for health</li> <li>➤ Use of e-cigarettes has documented adverse effects on humans like DNA damage; carcinogenesis; cellular, molecular and immunological toxicity;</li> </ul>	 <p>respiratory, cardiovascular and neurological disorders</p> <ul style="list-style-type: none"> <li>➤ E-cigarettes also have adverse impact on foetal development and pregnancy</li> <li>➤ E-cigarettes are banned in 30 countries</li> </ul>



One year has passed since, the Prohibition of Electronic Cigarettes (Production, Manufacture, Import, Export, Transport, Sale, Distribution, Storage and Advertisement)

Act, 2019 was notified.

- The Act categorizes production, manufacture, import, export, transport, sale, distribution, storage, and advertisement of e-cigarettes and similar devices as cognizable offences.
- The Act stipulates that persons found in violation of the law for the first time will face a jail term of up to one year or a fine of up to one lakh rupees, or both.
- For subsequent offences, a jail term of up to three years and fine upto Rs 5 lakh.
- It further punishes storage of e-cigarettes with imprisonment up to six months or a fine of up to Rs 50,000, or both. Once the Bill comes into force, the owners of existing stocks of e-cigarettes will have to declare and deposit these stocks at the nearest office of an authorized officer.

### **Electronic-cigarettes**

- Battery-operated devices that produce aerosol by heating a solution

containing nicotine, which is the addictive substance in combustible cigarettes.

- These include all forms of Electronic Nicotine Delivery Systems, Heat Not Burn Products, e-Hookah and the like devices.

### **Concerns**

- Their use has increased exponentially and has acquired epidemic proportions in developed countries, especially among youth and children.
- Apart from nicotine, e-cigarettes may also be used for delivery of other psychoactive substances.
- Widespread use and unchecked proliferation of e-cigarettes and the like devices would seriously undermine and derail Government's efforts to reduce the prevalence of tobacco use.

### **Significance of the decision:**

- The decision to prohibit e-cigarettes will help protect population, especially the youth and children, from the risk of addiction through E-cigarettes.
- Enforcement of the Ordinance will complement government's efforts for tobacco control and will help in reduction of tobacco use and reduction in associated economic and disease burden.
- The WHO has also urged member countries to take appropriate steps including prohibiting these products.

## Topic 27: HAMPI STONE CHARIOT

*Importance for Prelims: Culture*



Tourists can no longer get too close to the iconic stone chariot in front of the Vijaya Vittala Temple at Hampi, a UNESCO World Heritage site.

- The architectural marvel, one of the most photographed monuments, has been cordoned off by a chain barricade by the Archaeological Survey of India (ASI).
- The ASI put up the barricade to prevent people from touching or climbing the monument and causing damage to it in any way.

### **Hampi Chariot**

- The chariot inside the temple complex is a shrine dedicated to Garuda, but the sculpture of Garuda is now missing.
- The Hampi chariot is one among the three famous stone chariots in India, the other two being in Konark, Odisha, and Mahabalipuram, Tamil Nadu.
- The delicately carved chariot at Hampi reflects skill of temple architecture under the patronage of Vijayanagar rulers who reigned from 14th to 17th century CE.

## Topic 28: JASDAN

### *Importance for Prelims: Environment*



Leaving their known habitat in Dhari in Gir (east) wildlife division in Amreli district, three Asiatic lions have walked around 100 km to reach Jasdan taluka of Rajkot district, Gujarat and have been camping in a grassland and revenue areas of Jasdan for a week now.

- Lions keep moving from surrounding areas to Gir National Park and Wildlife Sanctuary (NGPWLS), creating what is called lion corridors.
- But their Jasdan visit differs for the fact that it is second year in a row, that too around same time of the year.
- Also, Jasdan is not connected to Amreli by any contiguous riverine patch associated with corridors like Krakach.
- Lions are considered top predators of grassland and shrubland ecosystems.
- Jasdan, Vinchhiya and Chotila talukas have grasslands, both private as well as in protected forest areas.

## Topic 29: AYUSH EXPORTS

*Importance for Prelims: Economy*

### Good Demand

Ayush products have recorded a 11.65 per cent growth in 2016-17 to 124 million (Rs 794 crore) from \$111 million (Rs 710 crore)

Herbal products have grown **10.66%** to

**\$280 million**  
(Rs 1,792 crore)

in 2016-17 from

**\$253 million**  
(Rs 1,619 crore).



- Hungary, Germany and Switzerland are the key importers from India
- For 2016-17, the total pharma exports have seen a negative growth of 0.43 per cent to \$16,840 million (about Rs 1.07 lakh crore) from \$16,912 million (about Rs 1.08 lakh crore)
- These two segments now account for about **2.5%** of total exports

Ministry of Commerce and Industry and Ministry of AYUSH have decided to set up an AYUSH Export Promotion Council to boost AYUSH exports.

- Ministry of AYUSH and Ministry of Commerce and Industry will work together for establishing an AYUSH Export Promotion Council (AEPC).
- The proposed AEPC can be housed at Ministry of AYUSH.
- Standardisation of HS code for AYUSH will be expedited.
- Ministry of AYUSH will work in collaboration with Bureau of Indian standards to develop international standards for AYUSH products as well as services.
- AYUSH industry will work on ensuring quality and standards of AYUSH products as well as to become price-competitive.
- AYUSH will figure in the Brand India activities.

## Topic 30: GEOGRAPHICAL INDICATION (GIs)

### *Importance for Prelims: Economy*



The Himachal Pradesh government is trying to obtain GIs (Geographical Indication) for five products from the state – KarsogKulth, Thangi of Pangi, Chamba Metal Crafts, ChambaChukh, and Rajmah of Bharmour.

- **KarsogKulth:** Kulthi or Kulth (horse gram) is a legume grown as a kharif crop in Himachal Pradesh. Kulth grown in the Karsog area of Mandi district is believed to be particularly rich in amino acids.
- **PangikiThangi:** It is a type of hazelnut which grows in Pangi valley located in the north-western edge of Himachal. It is known for its unique flavour and sweetness.
- **Chamba metal crafts:** These include items such as metal idols and brass utensils which, historically, were made by skilled artisans in the courts of kings of Chamba. There are efforts to revive the trade, and a plate made from a brass-like alloy and having carvings of gods and goddesses is still popular.
- **ChambaChukh:** It's a chutney made from green and red chillies grown

in Chamba, and prepared in traditional and unique ways. The practice has largely declined in rural households of Chamba, but survives to some extent at the small-scale industrial level.

- **BharmouriRajmah:** It's more specifically called the KugtaluRajmah, since it grows in the area around Kugti Pass in the Bharmour region of Chamba district. It is rich in proteins and has a unique flavour.