



EVERYDAY CURRENT AFFAIRS – JANUARY 6, 2021

TAMIL NADU

- **On January 5, Chief Minister Edappadi K Palaniswami - announced a public holiday for Thaiposam festival on January 28 this year.**
- ✓ In a statement, the CM said he had received representations from the public for a public holiday on Thaiposam festival day during his tour to several districts
- ✓ The Thaiposam festival day is a public holiday in countries like Sri Lanka and Mauritius.
- ✓ The CM also recommended including the festival in the list of public holidays in the coming years
- ✓ Thaiposam is a festival celebrated in reverence of Tamil deity Lord Muruga in Tamil Nadu.
- ✓ It is celebrated by Hindu Tamils on the full moon day during the Tamil month of 'Thai'.
- ✓ The festival is celebrated in Kerala too and in countries like Sri Lanka, Singapore, Malaysia, Mauritius and Indonesia

- **The state government – is all set to sign 2 major MoUs in the electronics manufacturing segment in January 2021**
- ✓ The state is expected to formalize agreements with Taiwan-based Pegatron and Tata Electronics soon to facilitate establishing units to manufacture Apple products
- ✓ The Taiwan-based Pegatron is the second largest manufacturer of Apple products
- ✓ The company has chosen Mahindra City as the site for its proposed plant in India.
- ✓ It is likely to invest around Rs.1,200 crore in the first phase to employ about 14,000 people.
- ✓ The next MoU will be signed by the government with Tata Electronics, which will make components for Apple products.
- ✓ It is investing Rs.5,000 crore and will employ 18,000 people in the first phase.

- ✓ The company had already started construction work at GMR SEZ near Hosur in Krishnagiri district.
- ✓ Foxconn, Pegatron and Wistron are the three leading makers of phones for Apple.
- ✓ While Foxconn is already located near Chennai in Tamil Nadu, Wistron opted for Karnataka.
- ✓ Now, Pegatron has settled for a site in Tamil Nadu and opted for Mahindra World City, a multi-product SEZ about 40 km south off Chennai on the GST Road.
- ✓ Both Pegatron and Tata Electronics are opting for the Government of India's production-linked incentives to drive exports.
- ✓ In September, 2020 Tamil Nadu government unveiled its ambitious Electronic Hardware Manufacturing Policy
- ✓ The Policy seeks to transform the state into a globally competitive Electronics Design and Manufacturing (ESDM) destination.
- ✓ It also proposes to increase Tamil Nadu's electronics industry output to \$100 billion by 2025 and to contribute 25% of total electronic exports to the world from India by that time.
- ✓ In order to promote electronic manufacturing clusters, Tamil Nadu has categorised the districts into Class A, B and C for administering state-level incentives.
- ✓ To cater to the workforce needs of the industry, the state has plans to train one lakh youngsters on skilled and semi-skilled jobs
- **87-year old Tamil writer A. Madhavan, who won the Sahitya Akademi award in 2015, died in Thiruvananthapuram on January 5.**



- ✓ Madhavan spent his entire life in Thiruvananthapuram and studied Malayalam in school
- ✓ However, he was attracted to social reformist ideas of the Dravidian movement and his stories were published in the Pongal special issues of magazines run by leaders of the movement.
- ✓ His literary career began as a translator of great writers across the world and in India.
- ✓ The Sahitya Akademi conferred the award for his collected prose writings 'Ilakkiya Chuvadukal'
- ✓ He was also a recipient of Kalai Mamani Award in 2009, the highest recognition bestowed on writers and artists by the Tamil Nadu Government.
- ✓ He was also conferred the Vishnupuram Literary Award

- ✓ Mohapallavi, his first collection of short stories, was published in 1974.
 - ✓ But Kadaitheru Kathaigal, the collection of his short stories, published the same year brought him more recognition.
 - ✓ Krishna Parunthu, one of his novels, is considered a masterpiece.
 - ✓ His other works include Thoovanam (1987), Punalum Manalum (1974), Kamini, Anaichatham, Madhavan Kathaigal and Arabia Kuthirai
- **Two 16th Century hero stones and two slabs containing Tamil inscriptions - have been discovered in Ulipuram, 25 km from Attur in Salem**
- ✓ The slabs contain details of donations to a nearby temple to run a religious retreat by using the revenue from paddy fields in Tummalapatti village



- ✓ The inscriptions mention the old name of the region, which underwent changes in the later Nayakkar period.
- ✓ Pon Venkatesan, president of the Salem Historical Research Centre, found the ancient relics during his routine survey
- ✓ Ulipuram was a part of the Magadai Mandalam with Arakalur as its capital in the 16th century.
- ✓ Tulukkanna Nayakkar had settled in the region during that time.
- ✓ One of the slabs has the year '1531 AD' inscribed.
- ✓ Ulipuram was known as Puliyaampur during the time of Nayakkar

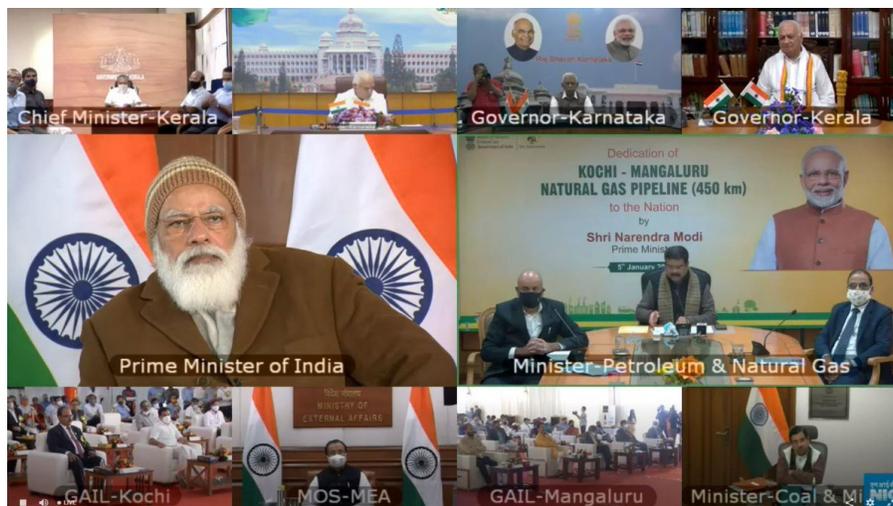
STATES

- **On January 5, the Kerala government - declared bird flu (avian influenza) a 'state disaster'**
- ✓ The state has commenced the culling of chickens and ducks in Kottayam and Alappuzha districts.
 - ✓ Many other states, including Himachal Pradesh, Punjab, Haryana and Madhya Pradesh, issued H5N8 virus alerts.
 - ✓ In Rajasthan, the bird flu outbreak spread to two more districts — Kota and Baran — on January 5.
 - ✓ In Himachal Pradesh, 336 migratory birds were found dead in Dharamshala
 - ✓ The bird flu seems to be spreading in Madhya Pradesh too, with several birds found dead in various districts
 - ✓ In Kerala's Alappuzha, 20,330 birds — mainly ducks — were slaughtered.
 - ✓ At least 28,000 ducks died in the past two weeks in Alappuzha.

- ✓ After the birds were culled, the carcasses were burnt using firewood, diesel and sugar, after which the areas will be sanitised
 - ✓ The Kerala government has decided to impose strict controls to contain the H5N8 strain in the two districts, where trade of poultry meat and egg is being regulated.
 - ✓ Tamil Nadu has imposed a ban on poultry and eggs brought from Kerala.
 - ✓ The Tamil Nadu Animal Husbandry Department has advised poultry farms in Namakkal to strictly follow bio-safety norms to prevent an outbreak of avian influenza.
 - ✓ Namakkal is a major hub of poultry goods in the country, while Coimbatore and Tiruppur districts are the major producers of broiler birds in the State
- **On January 5, Karnataka governor Vajubhai Vala - gave his assent to the state government's ordinance on cow protection**
- ✓ The new law, which comes into force with immediate effect, bans slaughter of all types of cattle, except buffaloes older than 13 years.
 - ✓ People convicted for violating the ban can face rigorous imprisonment of three to seven years and hefty fines.
 - ✓ Slaughterhouses, however, will continue to operate and beef consumption is not prohibited.
 - ✓ The Karnataka Prevention of Slaughter and Preservation of Cattle Bill, 2020, was passed in the assembly during the winter session, but was not cleared in the legislative council.
 - ✓ Therefore, the government issued a gazette notification promulgating the Ordinance.

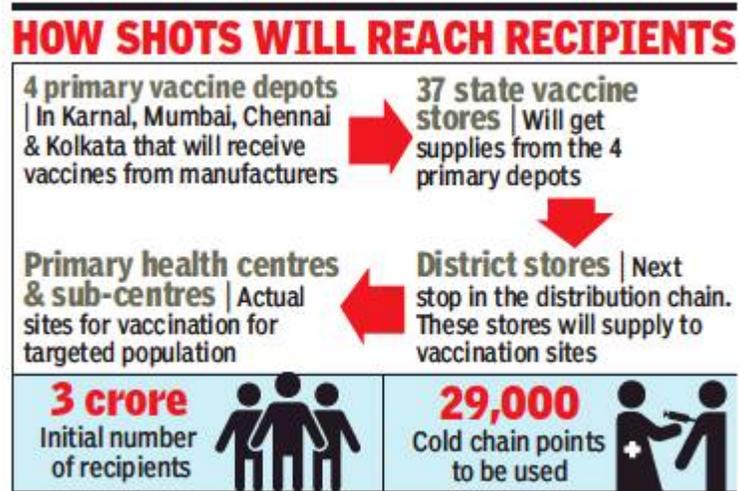
NATIONAL

- **On January 5, Prime Minister Narendra Modi – inaugurated state-run gas utility GAIL's 450-km pipeline joining Kochi with Mangalore through video conference**

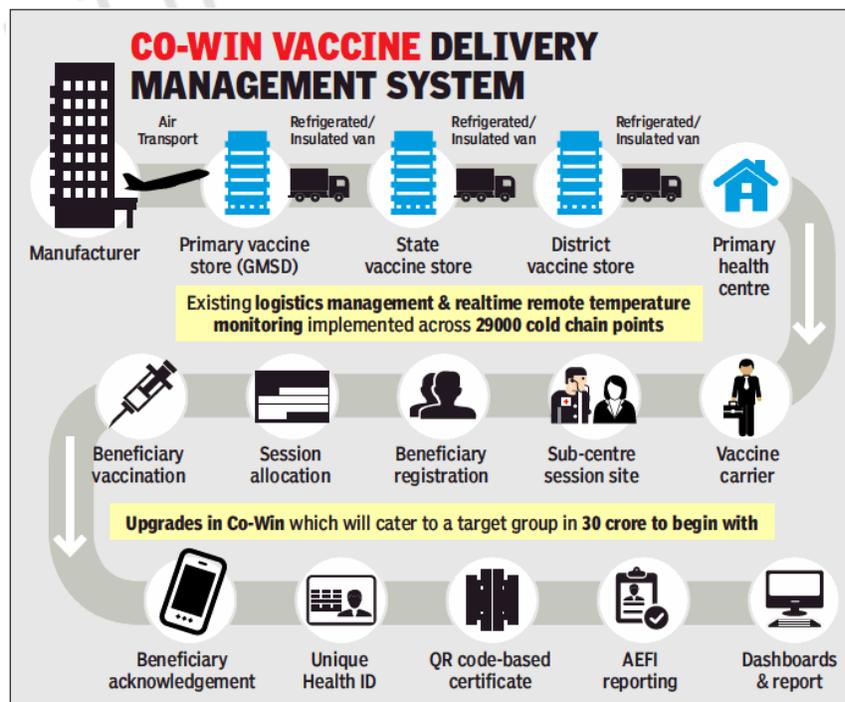


- ✓ According to the PM, the ₹3,000 crore project is as an important step towards creating a “One Nation, One Gas Grid”.
 - ✓ It provides households, city transport services and industries in both states of Kerala and Karnataka ‘easier and uninterrupted’ access to clean fuel at affordable prices.
 - ✓ The Kochi-Mangaluru pipeline would offer around 21 lakh PNG connections.
 - ✓ The pipeline is part of the 938km cross-country KKMBPL (Kochi-Koottanad-Bengaluru-Mangalore) pipeline being laid across Kerala (510 km), Tamil Nadu (310km) and Karnataka (70km) to supply gas imported in ships at Kochi.
 - ✓ The Kochi-Mangalore link will shortly be linked to Bengaluru and then to Tamil Nadu to create a southern gas grid which will be linked to the national network.
 - ✓ As per the PM Modi, work is being done to double the natural gas pipeline network in 5-6 years and expand the number of CNG (compressed natural gas) stations to 10,000 from the current 1,500.
 - ✓ The pipeline would improve the ease of living for people of both the states and reduce the (fuel) expenses of the poor, middle-class and entrepreneurs.
 - ✓ It would serve as the base for CNG-based transport system and piped gas service in these cities.
 - ✓ Clean energy supply would also play a major role in reducing pollution in both the states, thereby improving people’s health and reducing their health-related expenditure
 - ✓ The Kochi-Mangalore pipeline will bring gas to Dakshina Kannada district of Karnataka, while passing through Ernakulam, Thrissur, Palakkad, Malappuram, Kozhikode, Kannur and Kasaragod districts of Kerala.
 - ✓ The pipeline would help rejuvenate industries in both the states by reducing their fuel costs and help the fertiliser, petrochemical and power sectors.
 - ✓ It will also save foreign exchange for the country, making it a natural gas-based economy
 - ✓ The government’s plan was to increase the share of natural gas in the energy sector from the present 6% to 15% by 2030.
 - ✓ Focus was being given on increasing production of ethanol to increase its content in petrol to 20% from the present 5%.
 - ✓ The world’s largest hybrid energy plant (wind and solar) is also proposed to come up in Gujarat
- **The government – has announced that the Covid-19 vaccine will be rolled out across the entire country next week**
- ✓ The Indian regulator granted the emergency use authorisation (EUA) on January 3.
 - ✓ As per the health secretary Rajesh Bhushan, the launch of the vaccine is set to happen within 10 days of EUA being granted.
 - ✓ This is the first announcement from the government regarding a schedule for launch of the much-awaited vaccination drive against the pandemic.

- ✓ Earlier, the drug regulator announced grant of restricted emergency use authorisation to Pune-based Serum Institute of India for Covishield and Hyderabad-based Bharat Biotech for Covaxin
- ✓ Covishield is the vaccine developed by Oxford University and Astra Zeneca
- ✓ Covaxin was developed in collaboration with the Indian Council of Medical Research (ICMR).



- ✓ The vaccination drive will simultaneously begin across the country to initially inoculate three crore healthcare and frontline workers.
- ✓ The government has already uploaded data related to these recipients on Co-WIN — the IT platform used extensively to implement the immunisation programme against Covid-19.
- ✓ A command and control centre set up at the Centre’s aviation cargo wing, AAICLAS, will monitor the movement of Covid-19 vaccines across a network of 41 airports



- ✓ The AAICLAS — the Airports Authority of India Cargo Logistics and Allied Services Company Limited — will be the nodal body for co-ordinating air transportation of the vaccines among various stakeholders in the aviation sector.
 - ✓ Pune — where vaccine manufacturer Serum Institute of India is located — will act as the hub to track vaccine chain.
 - ✓ As per the government, the vaccine would be air transported by the manufacturers to four primary vaccine stores or depots located in different regions — Karnal, Mumbai, Chennai and Kolkata.
 - ✓ The vaccines will travel in refrigerated vans to reach 37 state vaccine stores.
 - ✓ Each of these centres has a temperature tracker, which will upload temperature data on a central server for real time monitoring.
 - ✓ States and UTs will further supply vaccines to district stores and then to primary health centres and sub-centres that are the actual vaccination sites in public and private hospitals, clinics and CHCs.
 - ✓ The whole process will involve over 29,000 cold chain points and will be closely monitored through the vaccine intelligence network enabled by Co-WIN.
 - ✓ Further, the government has announced that there was no ban on the export of Indian-manufactured vaccines
- **The Cabinet Committee on Parliamentary Affairs - has recommended a one-and-half-month-long budget session from January 29**
- ✓ The presentation of the Budget, as per the schedule, is set for February 1.
 - ✓ As per the practice, the Budget session will be conducted in two phases.
 - ✓ The first, beginning on January 29, will conclude on February 15.
 - ✓ The month-long second phase will be held from March 8 to April 8
 - ✓ In a first, the President's inaugural address to the joint sitting of the two Houses would have MPs seated at three locations due to social distancing norms.
 - ✓ These restrictions will also mean that the Rajya Sabha and the Lok Sabha will meet alternatively
 - ✓ The government had cancelled the winter session of Parliament citing a rising number of Covid-19 cases.
 - ✓ The only two sessions of Parliament that have been held during the pandemic — Budget session in March last year and the monsoon session — had to be cut short.
 - ✓ The Budget session which was scheduled to have 31 sittings was brought to a close after 23 sittings.
 - ✓ The monsoon session which was to have 18 sittings could manage just 10.
- **On January 5, the Centre - launched a hackathon named 'toycathon' for students, teachers and start-ups to design and develop toys and games**
- ✓ The toys are to be designed based on Indian culture and ethos, local folklore and heroes, and Indian value systems.
 - ✓ The goal of the "toycathon" is to promote India as a global toy manufacturing hub.



- ✓ According to Minister for Human Resource Development Ramesh Pokhriyal (Nishank), though the toy market in India is worth \$1 billion, 80% toys are imported.
- ✓ In August 2020, Prime Minister Narendra Modi in his Mann ki Baat address spoke about developing India as a toy hub.
- ✓ The Toycathon has nine themes, including fitness and sport and rediscovering traditional Indian toys.
- ✓ Participants can submit their proposals at <https://toycathon.mic.gov.in> between January 5 and 20.
- ✓ The hackathon is an initiative of the Ministry of Education, Ministry of Women and Child Development Ministry of Textile, Ministry of Commerce and Industries, Ministry of Micro, Small and Medium Enterprises, Ministry of Information and Broadcasting and All India Council for Technical Education.
- **The government - is expected to launch the All India Migrant Workers Survey and the All India Domestic Workers Survey by the first week of March this year**
 - ✓ As per the government, the framework of the surveys — its sample size and questionnaire — has been completed
 - ✓ Hereafter, the labour bureau will spend the next month training investigators who will conduct the field surveys.
 - ✓ The migrant workers' survey will provide authentic estimates of the number of migrant workers in the country, apart from assessing the issues they face
 - ✓ The survey of domestic workers, who constitute roughly 4% of India's working population, is the first-of-its-kind enumeration exercise
 - ✓ The survey will identify concerns faced by this section of workers and help the government frame policies to improve their conditions.
 - ✓ According to the 2016 Economic Survey, the migrant workforce in India is over 10 crore.
- **On January 5, the Agricultural and Processed Food Products Export Development Authority (APEDA) - had announced the decision to remove the term "halal" from the specifications for export of red meat**

- ✓ The decision to drop the term 'halal' from the Red Meat manual follows escalating protests from Hindutva groups and some Sikh bodies
 - ✓ These organisations have been campaigning against “halal” certification of meat, wherein the animals and poultry are slaughtered in accordance with Islamic religious guidelines
 - ✓ The manual of APEDA emphasised that “animals are slaughtered strictly according to halal method to meet the requirements of Islamic countries”.
 - ✓ It also further mentioned the meat being exported was of animals slaughtered “by the halal system under the strict vigilance of a recognised and registered Islamic body and as per the tenets of Islamic Shariyat”.
 - ✓ After the change, the manual says “the animals are slaughtered according to the requirement of the importing country/ importer”.
 - ✓ The move seeks not to force the 'halal' certified meat to the customers and countries that are unwilling to consume it
 - ✓ APEDA is a body under the ministry of commerce which handles agri-exports
- **The two-day Asian Waterbird Census-2020 - commenced in Andhra Pradesh on January 5 under the aegis of experts from the Bombay Natural History Society (BNHS)**
- ✓ The Census will cover at least two dozen sites, including Coringa Wildlife Sanctuary, Kolleru Lake and Krishna Sanctuary.
 - ✓ The amateur birdwatchers were trained on technical aspects of the bird census and challenges, enabling them to conduct the task on their own.
 - ✓ Overall, 12 sites were finalized to be covered under the census
- **Internet shutdowns - cost India an estimated \$2.8 billion (about ₹204 billion) in 2020, with 8,927 hours of disruption or targeted blackouts**
- ✓ This was revealed by the 'Global Cost of Internet Shutdowns 2020 report' released by a UK-based organisation, Top 10 VPN.
 - ✓ According to the report, the global internet shutdown cost is around \$4 billion, with India accounting for nearly 70% of the total losses.
 - ✓ Top 10 VPN, founded by technologist Antonio Argiolas, is a VPN review site that focuses on privacy and security.
 - ✓ It used the Cost of Shutdown Tool (COST) to arrive at the economic impact of global shutdowns.



- ✓ COST uses indicators from the World Bank, International Telecommunications Union, Eurostat and U.S. Census to arrive at the impact of internet shutdowns.
- ✓ According to the report, India reported 75 cases of shutdowns, which impacted over 10.3 million internet users.
- ✓ In 2019, researchers had estimated a total loss of \$1.3 billion for India, out of \$8 billion global cost.
- ✓ India was closely followed by Myanmar with 8,808 hours of internet shutdown and Chad with 4,608 hours of shutdown.
- ✓ The report also mentioned the internet shutdown in Kashmir as the “longest internet shutdown in a democracy”, which negatively impacted the distribution of medicines, businesses and schools.

SUPREME COURT VERDICT

- **On January 5, the Supreme Court - gave its approval to the government’s proposed multi crore Central Vista redevelopment project in a 2:1 majority verdict.**



- ✓ A Bench of Justices A M Khanwilkar, Dinesh Maheshwari and Sanjiv Khanna pronounced the 2-1 verdict
- ✓ Justice Khanwilkar and Justice Maheshwari have written the majority verdict, while Justice Khanna pronounced the dissenting judgment.
- ✓ The project aims to renovate and redevelop 86 acres of land in Lutyens’s Delhi, in which the landmark structures of the Indian government, including Parliament House, Rashtrapati Bhavan, India Gate, North Block and South Block, etc. are located
- ✓ The “Prime Minister’s dream project” was announced by the Ministry of Housing and Urban Affairs on September 13, 2019.
- ✓ The project includes Central Vista and new Parliament building projects that will provide a larger working space for legislators and an integrated administrative block for ministries of the Centre at New Delhi
- ✓ The new Parliament will be three times bigger than the existing 93-year-old heritage building
- ✓ A petition was filed in the Supreme Court in April 2020, challenging the Centre’s change-of-land-use notification of March 2020 with regard to the 86 acres of land

- ✓ Subsequently, the court heard the challenge on three main grounds - change of land use; violations of municipal law; and violations of environmental law

Path cleared

A chronology of the Central Vista project

Sept. 2019: Govt. announces Central Vista revamp plan; it envisages a new triangular Parliament House with a seating capacity for 900 to 1,200 MPs and several govt. buildings

Feb. 11, 2020: Delhi HC asks Delhi Development Authority to approach the court before notifying any change in the Master Plan before going ahead with the project

Feb. 28: Division bench stays order on an appeal by DDA, Centre

July 17: Supreme Court starts hearing a batch of pleas raising various issues, including environmental clearance and land use, related to the project



Nov. 5: SC reserves verdict

Dec. 7: SC allows Centre to proceed with foundation stone-laying ceremony for the Central Vista project but restrains it from starting construction

Dec. 10: Prime Minister Narendra Modi lays the foundation stone for the project

Jan. 5, 2021: SC clears the decks for construction of the ambitious project

- ✓ The 14-member Heritage Conservation Committee (HCC), headed by a top housing and urban affairs ministry official, will soon take up the construction proposal
- ✓ The panel has nine government officials and four academics from School of Planning and Architecture and Delhi University.
- ✓ The groundbreaking ceremony for the new Parliament building was held on December 10, 2020
- ✓ Prime Minister Narendra Modi laid the foundation stone for a new, triangular Parliament building, with the capacity to seat between 900 and 1,200 MPs.
- ✓ The building is expected to be constructed by August 2022 when the nation will be celebrating its 75th Independence Day.
- ✓ The decision to transfer the seat of the Government of India from Calcutta to the ancient Capital of Delhi was first announced by Britain's King George V at his coronation as Emperor of India on December 12, 1911
- ✓ Thereafter, a 20-year-long project to build modern New Delhi was undertaken by architects Edwin Lutyens and Herbert Baker.
- ✓ They built Parliament House, Rashtrapati Bhavan, North and South Blocks, Rajpath, India Gate, National Archives and the princes' houses around India Gate.
- ✓ New Delhi was unveiled in the year 1931.

INDIA AND OTHER COUNTRIES

- **UK Prime Minister, Boris Johnson – cancelled his Republic Day visit to India, citing Covid-19 situation in England**
- ✓ Boris was supposed to be the chief guest at the January 26 Republic Day celebrations in New Delhi

- ✓ The UK PM cancelled his visit to India citing fresh lockdown in England and the rapid spread of the new Covid strain.
- ✓ Considering the availability of less time to invite any other foreign dignitaries, India may not have any guest at all for the Republic Day parade this year.
- ✓ In that case, this will be the first time since 1966 that there will be no invite to a foreign leader for R-Day.
- ✓ The name of the R-Day guest is generally finalised and announced months in advance.
- ✓ The only time it got delayed in recent times until early December was in 2018
- ✓ During that time, South African President Cyril Ramaphosa accepted the invite for 2019 celebrations after it was declined by President Donald Trump.
- ✓ India had recently announced that it would resume limited flights to UK from January 8.
- ✓ However, England went into new and complete lockdown on January 4 after a fresh surge in Covid cases.

DEFENCE

- **The Indian Air Force – to sign two major long-pending military defence aircraft deals worth over ₹50,000 crore soon**
- ✓ The contracts for 83 indigenous Tejas fighters and 56 medium-transport aircraft through a Tata-Airbus joint venture are set to be signed within the next few months.
- ✓ The over ₹37,000 crore order for 83 Tejas Mark-1A jets from defence PSU Hindustan Aeronautics Ltd will be the biggest-ever deal in the indigenous military aviation sector.
- ✓ These 83 fighters will have 43 “improvements” over the 40 Tejas Mark-1 already ordered by the IAF.
- ✓ The deliveries of these jets will begin three years after the contract is signed
- ✓ The Tata-Airbus project to build 56 twin-turboprop C-295 aircraft will be the first time an Indian private sector company will enter the defence aerospace arena.
- ✓ The ₹11,929 crore deal seeks to replace the old Avro-748 aircraft of IAF
- ✓ As per the project terms, Airbus will supply the first 16 aircraft in two years after the contract is signed, while the remaining 40 will thereafter be built in India within eight years
- ✓ Both the projects have been sent to the cabinet committee on security (CCS) for the final approval.
- ✓ The Tejas contract will be the first to be approved by the CCS and is likely to be signed in early-February.
- ✓ The C-295 project, with the participation of Tata as the Indian production agency will follow subsequently.

FOUR COVID VACCINES IN CONTENTION FOR LAUNCH - REPORT

1 OXFORD-ASTRAZENECA & GAMALEYA INSTITUTE NON-REPLICATING VIRAL VECTOR VACCINE

Both vaccines seek to smuggle into the human body key pieces of the coronavirus embedded in a separate, harmless virus that cannot make the recipient ill. Both are non-replicating, which means the viral particle in the vaccine cannot replicate within the body. It can only nudge the body to create the specific part of the coronavirus that was enclosed within the harmless carrier, which in turn prompts the immune system to act against it. There are also replicating viral vector vaccines, such as one for Ebola, where the viral material can itself replicate within the body while priming the immune system.

The Covishield vaccine uses an adenovirus that causes common cold in chimpanzees to insert instructions for the human body to produce the Sars-CoV-2 spike protein.

NAME	Covishield or AZD1222
EFFICACY	Up to 90%
DOSAGE	2 doses, 4 weeks apart
STORAGE	Stable in refrigerator for at least 6 months
INDIA PRE-ORDER*	500m-1 bn doses

NAME	Sputnik V
EFFICACY	91.4%
DOSAGE	2 doses, 3 weeks apart
STORAGE	Freezer storage. Developing an alternative formulation that can be refrigerated
INDIA PRE-ORDER*	100m-200m doses

3 NOVAVAX | PROTEIN SUBUNIT VACCINE

The vaccine candidate being developed by the US-based Novavax is based on a protein subunit platform, which means it relies on a fragment of the virus to train the immune system to guard against disease instead of the whole virus. The Hepatitis B vaccine is an example of a subunit vaccine.

How vaccines train the immune system

VACCINE TYPES

Non-replicating viral vector (Covishield & Sputnik V) Inactivated virus (Covaxin) Protein subunit (Novavax)

1 Once the vaccine is administered, the virus particles contained within it enter the body. Now, since they are foreign elements that can damage the body, their presence is picked up by what are called 'antigen-presenting cells' (APCs). So, you can say the APCs trigger a sort of early warning system when the body is exposed to a virus. APCs ingest the virus and then highlight some portions of it, called **antigens**, that would enable other cells of the immune system to recognise them

2 Key among the cells that do the actual work of fighting the virus are 'T helper cells', which recognise the antigen and then alert other immune cells about fighting the virus

3 One of the cells recruited by the T helper cells is the **B cell**, which produces specific **antibodies** against the coronavirus

4 The antibodies not only prevent the virus from invading cells but also tag them so they can be destroyed by other immune cells. T and B cells can now recognise the virus and deploy antibodies in the event of an actual infection

NAME	NVX-CoV2373
EFFICACY	Data pending
DOSAGE	2 doses, 3 weeks apart
STORAGE	Stable in refrigerator
INDIA PRE-ORDER*	1 bn doses

For the Novavax shot, spike protein of the coronavirus is extracted from insect cells and injected into the body via nanoparticles that resemble the molecular structure of the coronavirus, but cannot cause Covid-19.

These vaccines are considered safe because they use only a fragment of the virus. However,

2 BHARAT BIOTECH INACTIVATED VIRUS VACCINE

Bharat Biotech's Covaxin, the first indigenous vaccine approved by the government, uses an inactivated form of the coronavirus. An inactivated virus vaccine, unlike a live virus one, is safer to administer to those with weakened immune systems.

Many existing vaccines are of this type, like the ones for measles and polio, but they require extensive safety testing. Also, these vaccines tend to require multiple doses and can take a long time to manufacture in large quantities.

NAME	NVX-CoV2373
EFFICACY	Data pending
DOSAGE	2 doses, 3 weeks apart
STORAGE	At least a week at room temperature
INDIA PRE-ORDER*	NA

Although they are seen as being safer than live vaccines, immunity from inactivated vaccines is weaker and so adjuvants - molecules that stimulate the immune system - are often included with inactivated vaccines to give a stronger immune response. Covaxin uses an adjuvant made by US-based ViroVax for enhanced efficacy.

Covaxin was shown to be effective in Phase 2 trials but neither the company nor the govt has released efficacy data for Phase 3 trials, drawing criticism from the medical community with some calling it a hasty approval.

For the Novavax shot, spike protein of the coronavirus is extracted from insect cells and injected into the body via nanoparticles that resemble the molecular structure of the coronavirus, but cannot cause Covid-19. These vaccines are considered safe because they use only a fragment of the virus. However, doing so means that the immune response they generate may also be weaker. This is why they often require adjuvants, which are substances that stimulate the immune system, to help boost the immune response. The Novavax vaccine uses its Matrix-M adjuvant.

*Pre-order data according to media reports
Source: NYT, Gavi, Nature