

My Notes....

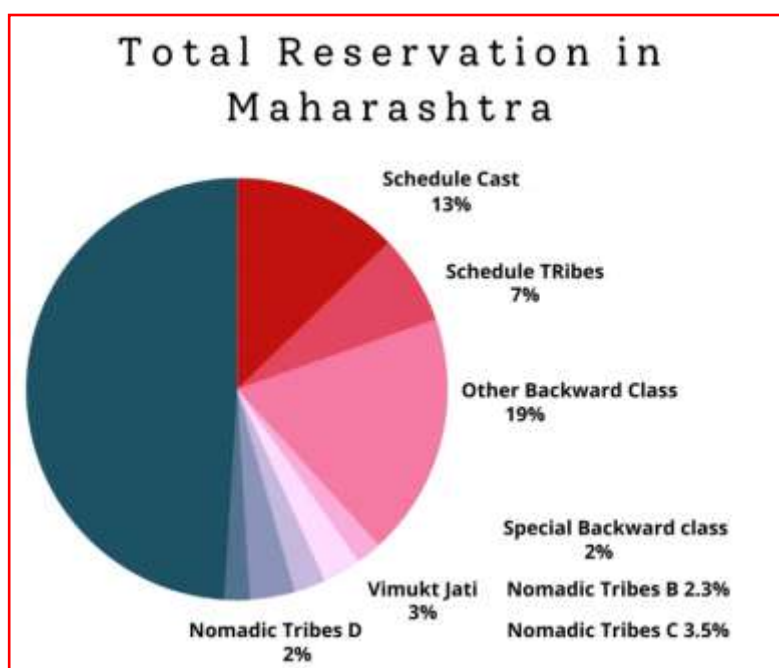
NATIONAL

SC QUASHES MARATHA RESERVATION

The **Supreme Court (SC)** on 5 May 2021 **ruled out any possibility of reconsidering the 1992 judgement in Indra Sawhney (Mandal Commission) case**, which **fixed 50% ceiling on reservation** in jobs and education. A **five-judge Constitution bench** presided over by Justice Ashok Bhushan **rejected a contention by several States to revisit the 1992 judgement**, due to subsequent developments and change in social dynamics in all these years.

What

1. **By a majority view**, the bench ruled that a **state government can't decide socially and educationally backward classes**. The Centre alone had the power to do so.
2. The bench struck down the **Maharashtra Socially and Educationally Backward Classes (SEBC) Act, 2018**, for having **breached the 50% cap** determined by a **nine-judge bench in 1992**.
3. The Maharashtra law **provided a 12 to 13% quota for Maratha** in jobs and education.
4. The court, for its part, declared the **Maratha community cannot be declared as socially and educationally backward** to provide them quota. It held that the 2018 state law violated the right to equality.
5. In its judgement, the top court **upheld the validity of 102nd Amendment Act**, this granted constitutional status to the National Commission for Backward Classes.
6. The top court allowed a batch of petitions filed against the Bombay High Court verdict which upheld 12 to 13% reservations for Marathas in jobs and education.
7. Several states, including **Karnataka**, have **favoured for more than 50% reservation** in jobs and education, depending upon the necessity and quantifiable data. They **contended that the 1992 judgement** was required to be reconsidered due to subsequent developments and change in social dynamics.
8. They had cited **103rd Constitutional Amendment on 10% Economically Weaker Section (EWS) quota**, to contend the Constitution itself now permitted reservation



beyond 50%.

9. However, those opposing the Maratha quota said **wherever Parliament wanted to overcome the Indra Sawhney judgement**, it has already done by way of amendments. If it had to revisit 50% ceiling too, the same would have been revisited too by the Constitutional Amendment.
10. The Centre, for its part, supported the Maharashtra law for quota to Marathas. It also **maintained 102nd Amendment did not take away states' power and rights** to identify backward classes.

TELCOS GET NOD FOR 5G TRIALS

The **Department of Telecommunications (DoT)** has given **nod to telcos for conducting trials for use and applications of 5G technology**. Telcos will have to conduct trials in **rural and semi-urban settings** also in addition to **urban settings** so that the **benefit of 5G Technology proliferates across the country** and is **not confined only to urban areas**.

What

1. The **duration of the trials**, at present, is for a **period of 6 months**. This includes a time period of **2 months for procurement and setting up of the equipment**.
2. Some telcos have tied up with original equipment manufacturers and technology providers which are Ericsson, Nokia, Samsung and C-DOT. In addition, **Reliance Jio will also be conducting trials using its own indigenous technology**.
3. The permissions have been given by DoT as per the priorities and technology partners identified by **Telecom Service Providers (TSPs) themselves**, the Ministry of Communications said on 4 May 2021.
4. The **experimental spectrum** is being given in various bands which include the **mid-band** (3.2 GHz to 3.67 GHz), **millimeter wave band** (24.25 GHz to 28.5 GHz) and in **Sub-Gigahertz band (700 GHz)**.
5. Telcos will also be permitted to use **their existing spectrum owned** by them (800 MHz, 900 MHz, 1800 MHz and 2500 MHz) for conduct of 5G trials.
6. The telecom department said the **5G technology is expected to deliver improved user experience** in terms of data download rates (expected to be 10 times that of 4G),

IMPROVING CONNECTIVITY

Experimental spectrum is being given in various bands:

MID-BAND	MILLIMETRE WAVE BAND	SUB-GIGAHERTZ BAND
(3.2 GHz to 3.67 GHz)	(24.25 GHz to 28.5 GHz)	(700 GHz)

- **Operators will also be permitted to use their existing spectrum** (800 MHz, 900 MHz, 1800 MHz and 2500 MHz) for conducting 5G trials
- **Applications are across sectors, including agriculture, education, health, transport, traffic management, smart cities, and IoT**
- **Mandatory for telecom operators to conduct trials in rural and semi-urban areas**
- **Trials will be on non-commercial basis**

up to three times greater spectrum efficiency, and ultra low latency to enable Industry 4.0.

7. **Applications of 5G are across a wide range of sectors** such as **agriculture, education, health, transport, traffic management, smart cities, smart homes, and multiple applications of IOT** (Internet of Things).

FIRST STATE TO JOIN COVAX ALLIANCE

The **Punjab government** on 13 May 2021 decided to **join the global COVAX alliance** for **sourcing the immunisation shots at the best price**. By doing so, **Punjab will become the first state in the country** to take the **initiative of addressing the vaccine shortage** amid the deadly second wave of the pandemic. **Abbreviated as COVAX, the COVID-19 Vaccines Global Access is a worldwide initiative** aimed at providing **equitable access to anti-Covid vaccines**.



What

1. **COVAX** is co-led by the **Coalition for Epidemic Preparedness Innovations (CEPI), Gavi and the World Health Organization (WHO)**, alongside **key delivery partner UNICEF**.
2. It aims at **accelerating the development and manufacture of COVID-19 vaccines** and to guarantee fair and equitable access for every country in the world.

OPERATION SAMUDRA SETU-II LAUNCHED

Indian Navy has launched **Operation Samudra Setu-II** to augment the ongoing **national mission for meeting oxygen requirements** in view of surge in cases of Covid-19. The **mission-deployed Indian Naval warships** will undertake shipment of **liquid oxygen filled cryogenic containers** and associated medical equipment. Indian Navy launches **Operation Samudra Setu II** to augment ongoing **national mission Oxygen Express**.

What

1. Mission deployed **Indian Naval warships** will undertake shipment of **liquid Oxygen filled cryogenic containers** and associated medical equipment in support of nation's fight against Covid-19.
2. Two ships **INS Kolkata and INS Talwar** have entered the **port of Manama, Bahrain** to transport 40 metric tonnes (MT) of liquid oxygen to Mumbai.
3. **INS Jalashwa** is **enroute to Bangkok and INS Airavat** to Singapore for similar mission.
4. Last year, Indian Navy had launched **Operation Samudra Setu as part of the Vande**

Bharat Mission and repatriated 3992 stranded and distressed Indian citizens from **Maldives, Sri Lanka** and **Iran**.

- The team will be deployed at the '**PM Cares Covid Hospital**', a special, **hospital set up to manage the Covid crisis**. The team is being deployed for two months to begin with and the duration would be extended if required.

FEW OPTED FOR NOTA OPTION

The '**none of the above**' or '**NOTA**' option had **very few takers in the five assembly polls**, counting of which was held on 2 May 2021. According to the **Election Commission**, **1.22 per cent of the total voters exercised the option in Assam. In Kerala, 0.5 per cent of the electors** used the NOTA option, while in the **Union Territory of Puducherry 1.30 per cent** who voted used the option. In **Tamil Nadu, 0.78 per cent** voters pressed the NOTA button which is placed at the end of the **electronic voting machine (EVM)** after the names of the contesting candidates. **In West Bengal, 1.1 per cent exercised the NOTA option.**

What

- The '**NOTA**' option on **EVM** was introduced in **2013** on the **directions of the Supreme Court** and it has its **own symbol -- a ballot paper with a black cross across it**.
- After the Supreme Court order in September, 2013, EC added the **NOTA button on the EVMs as the last option on the voting panel**.
- Prior to the apex court order, those not inclined to vote for any candidate had the option of filling what is popularly called '**form 49-O**'.
- But filling the form at the polling station **under Rule 49-O of the Conduct of Elections Rules, 1961**, compromised the secrecy of the voter.
- The **Supreme Court** had, however, **refused to direct the Election Commission to hold fresh polls if the majority of the electorate exercises the NOTA option** while voting.

FIRST BATCH OF INDIAN WOMEN POLICE INDUCTED

The **first batch of Indian Military Police with 83 women soldiers** was officially inducted into the **Indian Army** on 8 May 2021. The **attestation parade** of this first batch was held at the **Dronacharya Parade Ground** of the **Corps of Military Police Centre & School (CMPC&S)** in Bengaluru.

What

- The **Indian Army** was originally preparing to induct **100 young women**.
- However, 17 recruits have been relegated on **medical grounds and a failure in tests**, which rendered them unable to pass out in this first batch.
- Women have been allowed into the army** as officers **since 1992**, this is the first time that women in the "**enlisted**" ranks will be allowed to serve in the military, with other rank-and-file male troops.

4. **Some 40 per cent of the cadets** will be headed for field areas. The remaining will be posted to rear-echelon bases.
5. The **parade was conducted as a low-key event**. All **Covid-19 protocols** were followed.
6. According to officers in charge of the training of the women soldiers, the army plan is to have **20 per cent of the Military Police (MP)** be made up of women.
7. That means inducting **1,700 women into the Corps over a 16-year period** until the year 2037.

AYURVEDIC DRUGS FOR COVID PATIENTS

The **Ayush ministry** on 7 May 2021 said it has launched a **massive nationwide campaign** to distribute its proven **poly herbal ayurvedic drug AYUSH 64** and **Sidha medicine Kabasura Kudineer** for the benefit of Covid patients in home isolation. The **efficacy of these drugs** has been proved through **robust multi-centre clinical trials**, the ministry said.

What

1. **AYUSH-64** is **recommended in National Clinical Management Protocol** based on **ayurveda and yoga** which is vetted by **National Task Force on Covid Management of ICMR** and **Guidelines for Ayurveda Practitioners for Covid-19 patients** in home isolation.
2. **Kabasura Kudineer** is included in Guidelines for **Siddha Practitioners for Covid 19** issued by the **ministry of Ayush**.
3. A **comprehensive strategy of distribution** has been chalked out and the role out will **unfold in a phased manner**, utilising the wide network of various institutions working under the aegis of the ministry and **this will be supported by the countrywide network of Sewa Bharati**.

DRDO'S COVID TREATMENT DRUG GETS NOD

The **Country's drug regulator** has **approved an oral drug** developed by the **Defence Research and Development Organisation (DRDO)** for emergency use for adjunct treatment of moderate to **severe Covid positive patients**. DRDO, in a statement on 8 May 2021, said the **2-deoxy-D-glucose (2-DG) drug** can provide early relief from oxygen dependency among the patients, which can be helpful as the **second Covid-19 wave rages on across the country**, and more patients continue to need medical oxygen.

How does 2-DG drug work?

1. The **2-DG comes in powder form** in the sachet and is **taken orally** by dissolving it in water.
2. The **drug accumulates in the virus-infected cells** and **prevents virus growth** by stopping viral synthesis and energy production. Its **selective accumulation in virally infected cells** makes this drug unique.
3. The second wave, the 2-DG drug, DRDO claims, will save lives due to the **mechanism**

of operation of the drug in infected cells and will also help patients in getting discharged sooner.

4. Sharing **microscopic images of cells** before and after the drug is administered; that the **higher proportion of patients treated with 2-DG** showed RT-PCR negative conversion in Covid-19 patients.

DRDO'S 'OXYCARE' SYSTEM APPROVED

The **government** on 12 May 2021 **approved the procurement of 1,50,000 units of 'Oxycare' system** developed by the **Defence Research and Development Organisation (DRDO)** to help in the **treatment of COVID-19 patients. Oxycare is an oxygen supply system** based on **SpO2 (oxygen saturation) level**. The DRDO has already transferred the technology to multiple industries in India for large-scale production of the **Oxycare system**.

What

1. The **'Oxycare' systems** will be procured for Rs 322.5 crore using the **PM-Cares Fund**.
2. The **Oxycare system delivers supplemental oxygen** based on the **SpO2 levels** and prevents a person from sinking into a **state of hypoxia** which can be fatal.
3. **Oxycare was developed** by the **DRDO's Bengaluru-based Defence Bio-Engineering and Electro Medical Laboratory (DEBEL)** for soldiers posted at extreme high-altitude areas.
4. The system is indigenously developed for operation in field conditions and is robust. It can be **effectively used to treat COVID-19 patients**.

What is SpO2?

1. **SpO2, also known as oxygen saturation, is a measure of the amount of oxygen-carrying hemoglobin in the blood relative to the amount of hemoglobin not carrying oxygen.**
2. The **body needs there to be a certain level of oxygen in the blood** or it will not function as efficiently. In fact, **very low levels of SpO2 can result in very serious symptoms**. This condition is known as **hypoxemia**.

INTERNATIONAL

MODERNA'S VACCINE APPROVED

The **World Health Organisation** has given the **go-ahead for emergency use of Moderna's COVID-19 vaccine**. The **mRNA vaccine** from the **US manufacturer joins vaccines from AstraZeneca, Pfizer-BioNTech and Johnson & Johnson** in receiving the WHO's emergency use listing. Similar approvals for **China's Sinopharm and Sinovac vaccines** are expected in the coming days and weeks, WHO said.

What

1. The **greenlight for Moderna's vaccine**, announced late on 30 April 2021, took many months because of delays that **WHO faced in getting data from the manufacturer**.

2. Many countries without their **own advanced medical regulatory** and assessment offices rely on the WHO listing to decide whether to use vaccines.
3. **UN children's agency UNICEF** also uses the listing to deploy vaccines in an emergency like the pandemic.
4. The company struck supply agreements with many rich countries, which will have already received millions of doses.
5. **Moderna was actively participating** in discussions with **multilateral organisations**, such as **COVAX**, to help protect populations around the world.

INDIA-UK AGREED ON ETP

For **doubling and enhancing bilateral trade** by 2030, **India and the UK** have agreed to a new **Enhanced Trade Partnership (ETP)**. With the ETP in place, it will be easier to negotiate an **India-UK Free Trade Agreement** in the future. The decision was taken when Prime Minister met his British counterpart Prime Minister Boris Johnson during summit level talks virtually on 4 May 2021.

What

1. The virtual summit has opened a **new chapter in bilateral relations** between the two countries. The leaders had **substantive discussions** on the **entire gamut of bilateral relations** and exchanged views on regional and global issues of mutual interest.
2. The other big take away from the first ever virtual summit between the two nations was the **Declaration on Enhanced Trade Partnership**.
3. **Brexit** has provided new opportunities for both countries. The two-way trade in 2019-20 was USD 15.4 billion dollars.
4. At the summit, in an effort to more than double the trade by 2030, the two leaders announced their intent to negotiate a **comprehensive and balanced FTA** and this will include an **Interim Trade Agreement** for delivering early gains.
5. The biggest deliverable of the summit was the launch of **Roadmap2030**. The Roadmap which was adopted by the two leaders would pave the way for **deeper and stronger engagement over the next ten years**. And also help to elevate **India-UK partnership** to a **Comprehensive Strategic Partnership**.
6. **With EPA** in place now new opportunities will be unlocked for both the Indian and British companies and this help in **strengthening trade relations** between the two sides.

CHINA'S SPACECRAFT LANDS ON MARS

A **Chinese spacecraft has landed on Mars**, making **China only the second country after the U.S.** to **send a rover** to the **surface of the Red Planet**. A China National Space Administration (CNSA) **lander from the Tianwen-1**, which has been in orbit since February, touched down on **Utopia Planitia**, a large plain in the northern hemisphere of Mars on 15 May 2021.

What

1. The lander was carrying the **Zhurong rover**, named after an **ancient Chinese god of fire**, which will explore the surface near the landing site.
2. The **Tianwen-1 mission** has achieved **China's first landing on another planet**, and is a milestone with great significance in China's development of space and aviation.
3. The **Zhurong Mars rover** is hoped to ignite the spark of **China's interplanetary exploration** and guide humanity deep into the vast yet unknown outer space.
4. When **landing on the moon**, spacecraft can **use rockets to slow their descent** as they approach the lunar surface. That's possible because the **moon doesn't have an atmosphere**. For returns to Earth, spacecraft reentering the atmosphere can deploy parachutes to glide slowly down through the air.

ECONOMY

INDIA NOTIFIES DIGITAL TAX THRESHOLD

India on 3 May 2021 notified a revenue threshold of **Rs 2 crore** and a **limit of 300,000 users for non-resident technology firms** such as **Google, Facebook, Netflix**, to **pay tax in India** under **new or revised bilateral tax pacts**. This is part of the **Significant Economic Presence (SEP) principle**, which was introduced in the **Finance Bill 2018-19**, and which widened the scope of **'business connection'** to include provision of download of data or software, if aggregate payments from such transactions **exceed a prescribed amount**, or if a **multinational's interaction** is with a prescribed number of users.

What

1. The **amount of aggregate of payments arising from transaction**, or transactions of goods, services or property carried out by a non-resident, with any person in India **including download of data or software in India** during the previous year, **shall be Rs 2 crore**.
2. The number of users with **whom systematic and continuous business activities are solicited** or who are engaged in interaction **shall be three lakh**, said the notification issued by the ministry of finance. This will **come into effect from 1 April 2022**.
3. However, the **existing double taxation avoidance agreements** will **not be covered under the proposed change**, implying that in order to tax **Facebook, Google** and the like, India will require renegotiating the tax treaty with the US.
4. The **digital companies will come under India's tax net** only **when the existing treaties get reviewed** or when new ones are signed.
5. The **SEP provision was deferred till 2022-23** on grounds that a **multilateral solution under OECD is being deliberated** where all tax treaties will get amended automatically.

SOLAR PLI SCHEME BENEFIT PHOTOVOLTAIC

India Ratings and Research (Ind-Ra) on 11 May 2021 said the **solar production-linked Incentive (PLI) scheme** will **benefit 8-13 per cent of the photovoltaic energy plant** requirement till 2029-30, and aid **20 gigawatt (GW)** capacity developments in the next five years. Ind-Ra estimates that the allocation of Rs 45 billion (Rs 4,500 crore) towards the **solar modules manufacturing industry** by the **Ministry of New and Renewable Energy (MNRE)** can benefit the **sales of 20 GW** from the capacity developed under the **PLI scheme** across the five-year implementation period.

What

1. The government's **production-linked incentive scheme (PLI)**, instituted in **April 2020** for **large-scale electronics manufacturing in India**, has gained significant traction over the past year.
2. It offers a **simple and direct incentive based on incremental sales, designed to boost domestic manufacturing** and **attract large investments** in mobile phone and specified electronic component manufacturing units.
3. In **November 2020**, the **PLI scheme was extended to ten more sectors**, including **food processing, battery storage, automobile components** and **specialty steel**.

COVID-RELATED HEALTHCARE INFRASTRUCTURE

Resolving to be battle-ready to tackle **Covid-19's second wave**, **Reserve Bank of India (RBI)** Governor Shaktikanta Das on 5 May 2021 announced steps to **ease the economic hardship** that included **easier term of loan repayments by individual borrowers, small and medium businesses** and others as well as Rs 50,000 cr liquidity for **Covid-related healthcare infrastructure** in the country. The **Rs 50,000-crore priority lending by banks** is for **hospitals, oxygen suppliers, vaccine importers, COVID drugs** by 31 March 2022.

The steps announced are as such:

1. **Relaxation in rules for availing overdraft facility for state governments** till September 30.
2. States to **remain in overdraft for a maximum of 50 days vs 36 days** at present
3. **Small finance banks allowed to on-lend to smaller microfinance institutions** of asset size up to Rs 500 crore
4. **RBI re-opens one-time restructuring scheme** for individuals, MSMEs till September
5. Banks to **create a Covid loan book** under the scheme

ADVISORY GROUP TO ASSIST RRA 2.0

The **Reserve Bank** on 7 May 2021 said an **advisory group has been constituted** to assist the **second Regulatory Review Authority (RRA 2.0)** which was **constituted by the central bank** earlier this month to **streamline regulations** and **reduce the compliance burden of regulated entities**. Headed by SBI Managing Director S Janakiraman, the **advisory group will assist the RRA** by **identifying regulations, guidelines, and returns**

that can be rationalised.

What

1. The RBI has set up the **second Regulatory Review Authority (RRA 2.0)**, initially for a **period of one year** from 1 May 2021, with a view to streamline regulations and reduce the compliance burden of regulated entities.
2. Reserve Bank of India Deputy Governor **M Rajeshwar Rao** was appointed as the **Regulations Review Authority**.
3. To undertake its **preparatory work**, the advisory group has sought feedback and suggestions from **all regulated entities, industry bodies, and other stakeholders** by 15 June 2021.
4. **In 1999**, the **RBI had set up a Regulations Review Authority (RRA)** for reviewing the **regulations, circulars, reporting systems**, based on the feedback from the public, banks, and financial institutions.

TRIPS WAIVER FOR COVID-19

WTO Chief **Ngozi Okonjo-Iweala** has urged the proponents of the proposal for **temporary waiver of certain provisions of TRIPS agreement** for prevention and treatment of COVID-19 to submit the revised document "**as soon as possible**" so that **text-based negotiations can begin**. In October 2020, **India and South Africa** submitted a proposal **suggesting a waiver for all World Trade Organization (WTO) members** on the implementation of certain provisions of the agreement in relation to the **prevention, containment or treatment of COVID-19**.

What

1. The **proposed relaxations in the norms of the agreement** are aimed at ensuring quick and affordable access to vaccines and medicines for developing countries.
2. The agreement on **Trade-Related Aspects of Intellectual Property Rights or TRIPS** came into effect in **January 1995**.
3. It is a **multilateral agreement on intellectual property (IP) rights** such as **copyright, industrial designs, patents and protection of undisclosed information or trade secrets**.
4. It is only **by sitting down together** that the **member countries of the WTO** will find a **pragmatic way** forward which would be acceptable to all members and which would enhance developing countries' access to vaccines while **protecting and sustaining the research and innovation** so vital to the production of these **life-saving vaccines**.
5. The **proposal of India and South Africa** has received support from **more than 120 countries**. The EU too has stated that they are ready to discuss the patent waiver issue.
6. The **proposal has urged WTO to grant a waiver for limited years** (which will be **negotiated by the TRIPS Council**) from the implementation, application and enforcement of specific provisions of the TRIPS agreement for the prevention, containment and treatment of COVID-19.
7. This **waiver would ensure that the intellectual property rights** (like **patent**,

design, and **copyrights**) do not restrict rapid scaling up of manufacturing and do not hinder equitable and affordable access for vaccines and treatments throughout the globe.

INDIA'S COVID-19 CRYPTO RELIEF FUND

India's **cryptocurrency brigade** has taken on the complicated task of **funneling foreign aid** coming in through **digital coins to support Covid-19 relief**, while the country battles a **crippling second wave** — and all this, while the **blockchain-based assets** face an imminent ban by the government. A number of **crypto traders** and entrepreneurs have announced donations **to support India's fight against coronavirus**. **Ethereum** co-founder **Vitalik Buterin added \$1 billion** to India's fight against Covid in Shibu Inu coin — a so-called **joke coin** — and another **\$2 million in Ether coins**. Australian cricketer Brett Lee also donated one Bitcoin to the cause last month.

What

1. The **Supreme Court scrapped the ban in March 2020**, but the RBI has not issued a circular revoking its ban and domestic banks remain wary of dealing in the currency until the central bank gives them the go ahead.
2. The **RBI has informally urged banks to sever ties with cryptocurrency exchanges** and traders.
3. The government is also working out the details of a **cryptocurrency regulation bill** to reportedly bar all private digital currencies and launch its own official **Central Bank Digital Currency (CBDC)** backed by the RBI.
4. The bill has provoked strong opposition from crypto investors in the country.

SCIENCE AND TECHNOLOGY

ATMAN AI DEVELOPED FOR COVID-19

The **Defence Research and Development Organisation (DRDO)** and **Centre for Artificial Intelligence and Robotics (CAIR)** have created an **artificial intelligence (AI) algorithm** to help detect **Covid-19 from chest X-rays**. According to its developers, the **tool named Atman AI** used for **Chest X-ray screening** has shown an **accuracy rate of 96.73 per cent**.

What

1. The development of the **diagnostic tool** was part of DRDO's effort to help clinicians and partners on the frontline to **help rapidly diagnose** and **effectively treat COVID-19 patients**.
2. Given the **limited testing facilities for coronavirus**, there is a **rush to develop AI tools** for **quick analysis using X-rays**.
3. The **tool will help in automatically detecting radiological findings** indicative of Covid-19 in seconds, enabling physicians and radiologists to more effectively triage the cases, especially in an emergency environment.

4. The team behind the initiative further noted that triaging **using X-ray** was observed to be fast, cost-effective and efficient. It can be a **very useful tool** especially in smaller towns in our country owing to lack of easy access to CT scans.

SPACEX CAPSULE DEPARTS FROM ISS

SpaceX returned four astronauts from the **International Space Station (ISS)** on 2 May 2021, **making the first U.S. crew splashdown in darkness** since the **Apollo 8 moonshot**. The **Dragon capsule parachuted into the Gulf of Mexico off the coast of Panama City**, Florida, just before 3 a.m., ending the second astronaut flight for Elon Musk's company. It was an express trip home, **lasting just 6 1/2 hours**.

What

1. The astronauts, **three American** and **one Japanese** flew back in the **same capsule named Resilience** - in which they launched from NASA's Kennedy Space Center in November.
2. Their **167-day mission is the longest for astronauts** launching from the U.S. The previous record of **84 days was set by NASA's final Skylab station crew in 1974**.
3. **SpaceX had practised for a nighttime return**, just in case, and even recovered its most recent station cargo capsule from the Gulf of Mexico in darkness.
4. **Infrared cameras tracked the capsule** as it re-entered the atmosphere; it resembled a bright star streaking through the night sky.
5. **All four main parachutes** could be seen deploying just before splashdown, which was also visible in the infrared.

SPACEX LAUNCHES, LANDS STARSHIP

SpaceX launched and **successfully landed its futuristic Starship** on 6 May 2021, finally nailing a test flight of the rocketship that Elon Musk intends **to use to land astronauts on the moon** and **send people to Mars**. The previous four tests flights ended in **fiery explosions** before, during or soon after touchdown at the southeastern tip of Texas, near Brownsville.

What

1. This latest **upgraded version of SpaceX's full-scale, stainless steel, bullet-shaped rocketship** soared more than 6 miles (10 kilometers) over the Gulf of Mexico before flipping and descending horizontally, and then going vertical again just in time for touchdown.
2. Success came on the **60th anniversary of the flight of first American in space, Alan Shepard**. And it capped a stunning two weeks of achievements for SpaceX: the launch of **four more astronauts to the space station for NASA**, the nation's first nighttime crew splashdown since the **Apollo moonshots**, and a pair of launches for its **mini internet satellites**.
3. Less than a month ago, NASA chose **SpaceX's Starship to deliver astronauts** to the lunar surface in the next few years. The **\$3 billion contract** was halted last week however, after the losing companies - **Jeff Bezos' Blue Origin and Dynetics** -

protested the selection.

WORLD'S FIRST 2-NANOMETER CHIP TECHNOLOGY

For decades, **each generation of computer chips got faster and more power-efficient** because **their most basic building blocks**, called **transistors**, **got smaller**. The pace of those improvements has slowed, but **International Business Machines Corp** on 6 May 2021 said that **silicon has at least one more generational advance** in store. IBM introduced **world's first 2-nanometer chipmaking technology**.

What

1. The **technology could be as much as 45% faster** than the **mainstream 7-nanometer chips** in many of today's laptops and phones and up to **75% more power efficient**.
2. **IBM now outsources its high-volume chip production to Samsung Electronics Co Ltd** but maintains a chip manufacturing research center in Albany, New York that produces **test runs of chips** and has joint technology development deals with **Samsung and Intel Corp** to use **IBM's chipmaking technology**.
3. The **2-nanometer chips** will be **smaller and faster** than today's leading **edge 5-nanometer chips**, which are just now showing up in **premium smartphones** like Apple Inc's iPhone 12 models, and the **3-nanometer chips expected to come after 5-nanometer**.
4. The technology IBM showed on 6 May 2021 is the **most basic building block of a chip**: a **transistor**, which acts like an **electrical on-off switch to form the 1s and 0s of binary digits** at that **foundation of all modern computing**.
5. Making the switches **very tiny makes them faster and more power efficient**, but it also **creates problems with electrons leaking** when the switches are supposed to be off.

CRYPTOCURRENCY-FUNDED SATELLITE DOGE-1

Elon Musk-run SpaceX is now accepting the new cryptocurrency **Dogecoin** to launch an upcoming satellite **named DOGE-1 to the Moon**. The **DOGE-1 is a cubesat** to acquire **"lunar-spatial intelligence"** using onboard cameras and sensors. The satellite is being **developed by Geometric Energy Corporation** and it will be flown onboard a **Falcon 9 rocket** in the first quarter of 2022.

What

1. **Dogecoin is fourth-largest cryptocurrency** by market value and promoted by Musk fell sharply.
2. After **vouching for Bitcoin**, Tesla CEO Elon Musk now **supports Dogecoin cryptocurrency**, even calling him **"Dogefather"**.
3. **Dogecoin is a cryptocurrency** invented by software engineers **Billy Markus** and **Jackson Palmer**, who decided to create a payment system. **Nearly 113 billion coins have already been mined**.

- Amid the surge in **Bitcoin and Ether cryptocurrencies**, Dogecoin has surged more than 659 per cent this year.
- Tesla recently announced it has invested **\$1.5 billion in the Bitcoin cryptocurrency**.

6,000TH RAILWAY STATIONS GET FREE WI-FI

Free Wi-Fi facility is now available in 6,000 railway stations across the country, the **6000th station being in Hazaribagh Town of Jharkhand** which went online on 15 May 2021. The **Wi-Fi facility at railway stations** meets the objectives of the aspiring "**Digital India**" programme of government of India.

What

- This will **bridge the digital divide between the rural and urban citizens** thereby **increasing the digital footprint in the rural villages** and also **enhance the user experience**, the Indian Railways said in a statement.
- Provision of Wi-Fi facilities at stations** is being provided on a **self-sustainable basis with no cost to the railways** with the **help of RailTel**, a PSU under the Ministry of Railways.
- The **task was carried out** in partnership with **Google, DOT (under USOF), PGCIL and Tata Trust**.
- The **first ever Wi-Fi facility** started in the railway network was at a **Mumbai Railway station in 2016**.
- Wi-Fi facility can be availed by anyone** with a smartphone and an **active connection after an OTP-based verification**.
- The railway has around **7,500 stations across the country**.

MISCELLANEOUS

WORLD PRESS FREEDOM DAY, 2021

Every year 3rd May is observed as World Press Freedom Day. According to the **UNESCO**, the **day dedicated to freedom of press underscores** the need for governments and people across the world to '**respect their commitment to press freedom and is also a day of reflection among media professionals** about issues of press freedom and professional ethics.

What

- World Press Freedom Day** is a day of showing **solidarity with journalists**, photo-journalists and all associated with the media **who brave the toughest conditions to disseminate information** and **bring news from across the world** to the homes of people.
- The **theme of this year's** World Press Freedom Day, '**Information as a Public Good**', underlines the **indisputable importance of verified and reliable information**.

3. It calls attention to the **essential role of free and professional journalists** in producing and disseminating this information, by tackling misinformation and other harmful content.
4. **Enhanced Media and Information Literacy (MIL) capacities** that enable people to recognize and value, as well as defend and demand, journalism as a vital part of information as a public good.

NASA SLAMS CHINA OVER SPACE DEBRIS

American space agency NASA on 8 May 2021 **slammed China** for failing to meet "responsible standards" regarding its **space debris**, hours after **remnants of the country's largest and an out of control rocket** disintegrated over the **Indian Ocean near the Maldives**. The **debris from China's Long March 5B rocket** re-entered the **Earth's atmosphere** and fell into an open sea area at 72.47 degrees east longitude and 2.65 degrees north latitude.

What

1. Reacting to **China's space programme**, NASA said: "It is clear that **China is failing to meet responsible standards regarding their space debris**."
2. **Spacefaring nations** must minimize the risks to people and property on **Earth of re-entries of space objects** and maximize transparency regarding those operations.
3. It is critical that China and all spacefaring nations and commercial entities act responsibly and **transparently in space** to ensure the **safety, stability**, security, and long-term sustainability of outer space activities.
4. The rocket launched the **first module of China's new Tianhe space station into Earth's orbit on 29 April 2021**. At around 100 feet tall and weighing about 22 metric tonnes, the rocket stage is one of the largest objects to ever re-enter the Earth's atmosphere on an uncontrolled trajectory.

'BLACK FUNGUS' ADDS TO INDIA'S COVID WOES

The **Indian government** has told doctors to look out for signs of **mucormycosis** or "**black fungus**" in COVID-19 patients as hospitals report a rise in cases of the rare but potentially fatal infection. The state-run **Indian Council of Medical Research (ICMR)** said at the weekend that doctors treating COVID-19 patients, diabetics and those with compromised immune systems should watch for early symptoms including **sinus pain or nasal blockage** on one side of the face, one-sided headache, swelling or numbness, toothache and loosening of teeth.

What

1. The disease, which can lead to **blackening or discolouration over the nose, blurred or double vision, chest pain, breathing difficulties** and **coughing blood**, is strongly linked to diabetes.
2. And diabetes can in turn be exacerbated by steroids such as **dexamethasone**, used to treat **severe COVID-19**.
3. There have been cases **reported in several other countries** - including the **UK, U.S.**,

- France, Austria, Brazil and Mexico, but the volume is much bigger in India.
4. India has not published **national data on mucormycosis** but has said there is no major outbreak.

What is Mucormycosis

1. **Mucormycosis**, known **colloquially as the black fungus**, is a **rare but dangerous fungal infection** caused by a group of moulds known as **mucormycetes**, which are present naturally in the environment.
2. They only cause serious complications when a patient has **pre-existing health problems** or has taken medication that compromises the immunity system.
3. The **fungal spores commonly enter through inhalation** and affect the sinuses or lungs. They can also **enter through an open cut or wound** and **infect the skin**.

NATIONAL TECHNOLOGY DAY 2021

National Technology Day 2021 on 11 May 2021 **celebrates the achievements and contributions of Indians to science and technology**. This day serves as a reminder of **India breaking into the elite group of nations with nuclear weapons**. On 11 May 1998, **India conducted three successful nuclear tests** at the Indian Army's Pokhran Test Range in Rajasthan under **Operation Shakti**. Two more nuclear tests were conducted on 13 May 1998. The tests were led by late President Dr. APJ Abdul Kalam. The **National Technology Day was observed for the first time on 11 May 1999**.

What

1. The **nuclear tests conducted on this day in 1998**, which gives **National Technology Day 2021** its significance, were helmed by aerospace scientist and former President of India APJ Abdul Kalam.
2. The **National Technology Day 2021 theme** is “**Science and Technology for a Sustainable Future**”.
3. In 2020, the **theme** was ‘**Rebooting the Economy through Science, Technology and Research Translations**’ titled **‘RESTART’**.

OSIRIS-REX STARTS TRIP BACK TO EARTH

A **NASA spacecraft**, which scientists believe has **collected samples from an asteroid**, began its **two-year journey back to Earth** on 11 May 2021. NASA’s **OSIRIS-REx spacecraft** is attempting to complete a **mission to visit Bennu**, a **skyscraper-sized asteroid** some 200 million miles (320 million km) from Earth, survey the surface, collect samples and deliver them back to Earth.

What

1. Staff celebrated at the **OSIRIS-REx control room in Colorado** as the space vehicle pushed away from the asteroid, whose acorn-shaped body formed in the early days of

- our solar system. **OSIRIS-REx arrived at Bennu in 2018.**
2. The spacecraft found **traces of hydrogen and oxygen molecules** – part of the **recipe for water** and thus the **potential for life** – embedded in the asteroid's rocky surface, said Dante Lauretta, the OSIRIS-REx mission's principal investigator, in 2018.
 3. The **trip back to Earth will take about two years.** The spacecraft will then eject a capsule containing the asteroid samples, which NASA says will land in a **remote area of Utah.**
 4. NASA says **samples will be distributed to research laboratories worldwide,** but **75% of the samples** will be preserved at the Johnson Space Center in Houston for future generations to study with technologies not yet created.
 5. OSIRIS-REx spacecraft, **built by Lockheed Martin, launched in 2016** to grab and return the first US sample of **pristine asteroid materials.** **Japan is the only other country to have accomplished such a feat.**
 6. **Asteroids are among the leftover debris from the solar system's formation** some 4.5 billion years ago. A sample could hold clues to the **origins of life on Earth,** scientists say.

B.1.617 IS NOT 'INDIAN VARIANT'

The **Centre** on 12 May 2021 **strongly opposed the use of the term 'Indian Variant'** and said this **classification was not made by the World Health Organization.** The WHO had, on 11 May 2021, said the **variant was of 'global concern'**. "Several reports have covered the news of World Health Organisation (WHO) **classifying B.1.617 as variant of global concern.** Some of these reports have termed the **B.1.617 variant of the coronavirus as an 'Indian Variant',**" the ministry said. These media reports are without any basis, and unfounded.

What

1. This is to clarify that the **WHO has not associated the term 'Indian Variant'** with the **B.1.617 strain of the coronavirus** in its 32 page document.
2. The WHO in its report said the **B.1.617 variant of SARS-CoV-2,** the virus that causes COVID-19, was **first detected in India in October 2020.**
3. The report further stated that it has "**increased transmissibility**" and has been found in **44 nations.**
4. In fact, the **word "Indian" has not been used in its report** on the matter, the ministry added.
5. **WHO South-East Asia** said that **it does not identify viruses or variants with names of countries** they are first reported from.
6. We refer to them by their scientific names and request all to do the same for consistency, it said.