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Annual Booklet

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MEGA



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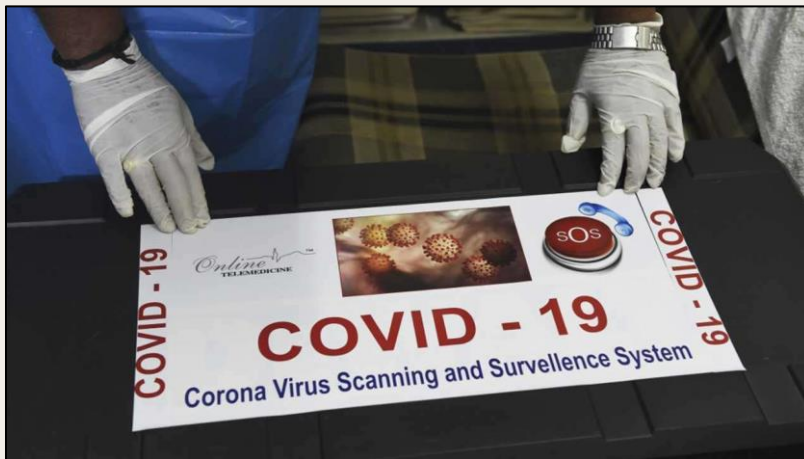
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Covid-19 Timeline in India

December 31

On December 31, 2019, Chinese officials informed the World Health Organization (WHO) China Country Office that 27 cases of pneumonia of unknown cause were detected in Wuhan City, Hubei Province of China.



January 07

The pathogen was called **coronavirus 2019 nCoV** by Chinese authorities, identifying that it spreads via airborne droplets.

January 11

China reported its first known death from an illness caused by the new coronavirus. The patient was a 61-year-old man in Wuhan with abdominal tumours and chronic liver disease.

January 30

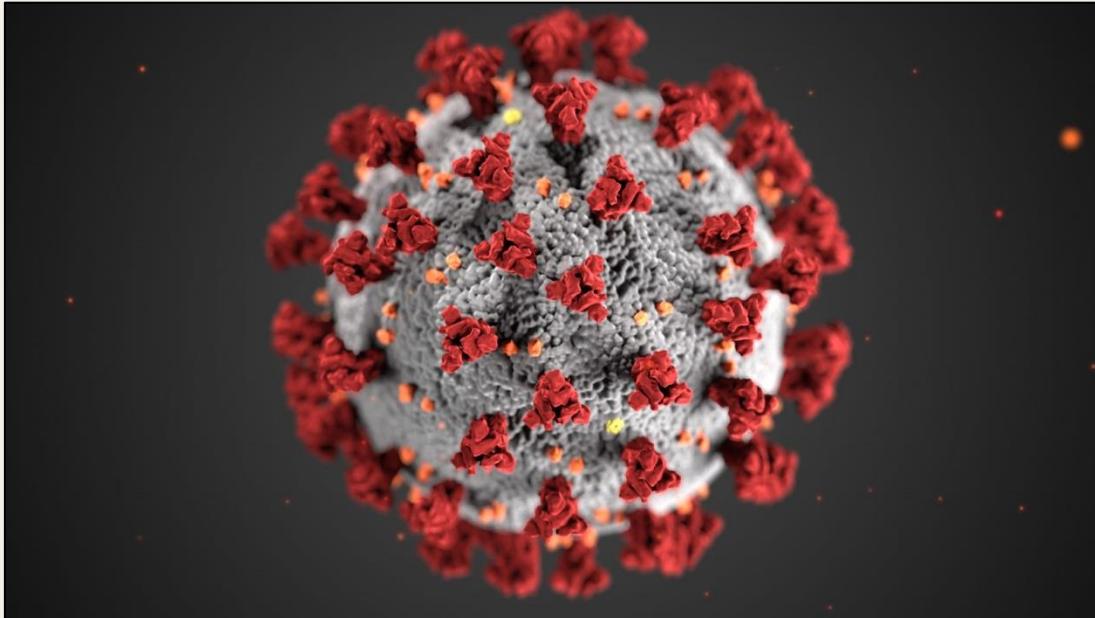
India's **first novel coronavirus patient** - a student studying at Wuhan University - was reported in Kerala's Thrissur district, as more than 7500 cases were reported in 20 countries of the world.

A week after claiming that the outbreak doesn't yet constitute a public emergency of international concern and that there is "no evidence" of the virus spreading between humans outside of China, WHO declared the outbreak a public health emergency of international concern.

The Wire published a detailed article by Priyanka Pulla on why India should worry about the new coronavirus reflecting on the new evidence that the 2019 nCoV can be transmitted by asymptomatic patients.

January 31

India first **airlifted citizens** from China one month after the new disease was first reported



February 03

Kerala government declared coronavirus a state calamity after two more cases were reported in Alappuzha and Kasaragod district.

February 04

India canceled existing visas for Chinese and foreigners who had visited China in the last two weeks, the day after the death toll in China exceeded that of the 2002-03 SARS outbreak.

February 11

WHO announced that the new coronavirus disease will be known by the official name of **COVID-19**.

February 27

India conducted the final airlift from Wuhan, China bringing back 759 Indians and 43 foreign nationals.

March 02

Two more cases were reported - a 45-year-old man in Delhi who had travelled back from Italy and a 24-year-old engineer in Hyderabad who had a travel history from Dubai.

March 03

Two months after the outbreak, Prime Minister Modi tweeted for the first time saying that "there is no need to panic" as "ministries and states are working together" to screen people.

This proved to be incorrect as **22 new cases of COVID-19 were confirmed by the Health Ministry, the very next day**, most of them who had recently travelled abroad.

Had an extensive review regarding preparedness on the COVID-19 Novel Coronavirus. Different ministries & states are working together, from screening people arriving in India to providing prompt medical attention.

— Narendra Modi (@narendramodi) March 3, 2020

March 06

Screening of all international passengers begins at airports. **Earlier, passengers from only 'high risk' countries were being screened.**

March 08

COVID-19 cases reported in 100 countries of the world, with more than 100,000 cases worldwide.

March 10

50 COVID-19 cases reported in India as the total number of cases doubled in just 4 days. 13 states and UTs in India had reported at least one COVID-19 case.

Most of the patients (23, including 16 Italian nationals) had a travel history to Italy. Besides this, four COVID-19 cases had a travel history to Iran and an equal number to the US.

Of the 11 cases of local transmission, 10 patients came in direct contact with people who had contracted the infection outside India.

The source of infection in the 11th patient was unknown, suggesting early signs of **community infection**.

March 11

The World Health Organization declared that the "**COVID-19 can be characterized as a pandemic**," which is defined as the spread of a new disease worldwide, for which most people don't have immunity.

March 12

India reported its **first death** after a 76-year-old man from Kalburgi, Karnataka became the first victim of the virus in the country.

On this day, India also banned the entry of foreigners for a month suspending all visas for travel to India from March 13 to April 15.

Haryana with 14 cases declared COVID-19 as an epidemic.

March 13

Odisha declared COVID-19 a 'disaster' and ordered the immediate closure of educational institutions, cinema halls, public swimming pools and gyms, even though the state had not reported a single case of infection.

However, officials from the Ministry of Health & Family Welfare, Government of India said that "**coronavirus is not a health emergency and that there is no need to panic**".

March 22

50 days after the virus was first reported in India, a 14-hour voluntary lockdown called '**Janata Curfew**' was observed in India.

India reported a total of 360 cases and tested a total of 16,021 individuals until the Janata Curfew. The test positivity rate (TPR) was around 2.2%.

March 25



A **nationwide lockdown** was imposed till April 14, two days after the 'Janata Curfew'.

In his tweet, PM Modi said that "THERE IS ABSOLUTELY NO NEED TO PANIC". However, he didn't mention how the

essential supplies will be provided or how the migrant workers will survive in the absence of daily wages.

India reported 606 cases and ten deaths related to COVID-19 until this day with infections in 24 states and UTs. It had tested less than 20,000 individuals to date.

March 31

The national capital's Nizamuddin area, emerged as one of the **COVID-19 'hotspots' in India** with a large number of attendees at a religious congregation held at the headquarters, or Markaz, of the Tablighi Jamaat, being tested positive

April 05

100 confirmed deaths were recorded.

April 14

10,000 confirmed cases were recorded, as the nationwide lockdown was further extended till May 3.

All states and UTs of India (except Dadar Nagar Haveli and Sikkim) reported at least one case of COVID-19.

India tested a total of 2,30,000 individuals with a high test positivity ratio of 4.7%.

April 22

20,000 confirmed cases were reported as cases double every 7 days, even after one month of nationwide lockdown.

April 29

1000 confirmed deaths were recorded.

May 01

The nationwide lockdown was further extended till May 17.

May 07

50,000 confirmed cases were reported.

May 15

India Records 100 COVID-19 Deaths in 24 Hours.

May 16

India with 85,940 cases overtook China in terms of the total number of cases reported.

May 17

Nationwide lockdown further extended till May 31, making it one of the longest lockdowns any country has imposed ever.

May 19

Cases continue to increase as **100,000 confirmed cases were reported**.

India for the first time tested more than 100,000 samples (including the less reliable TrueNat and CB-NAAT) in 24 hours.

May 31

5000 confirmed deaths were recorded.

June 08

Phased reopening begins after **75 days of lockdown**, as India records more than **2,50,000 COVID-19 cases and 7200 deaths**. At the start of the lockdown, India had reported only 606 cases and ten deaths.

June 12

More than **10,000 new cases** were reported.

June 17

India registered the highest-ever spike of **2,003 COVID-19 deaths** as Maharashtra and Delhi added 'backlog' fatalities to their data.

June 27

After reporting 100,000 cases on May 19, India adds 100,000 cases in 15, 10, 8 and 5 days respectively to bring the total number of cases to half a million.

Source:

<https://thewire.in/covid-19-india-timeline>

Union Budget 2020-21

Union Finance Minister Nirmala Sitharaman presented the **Union Budget for Financial Year 2020-21** for the 2nd time. The



GDP growth of India's forecasts at between **6.00%** to **6.50%** for the fiscal year

starting from 1st April 2020 to 31st March 2021. In this budget, the **nominal GDP growth** has been estimated at 10% for the financial year 2020-21. The Union Budget 2020-21 was based on three prominent themes underlining the Ease of Living:

Aspirational India: Better standards of living with access to health, education and better jobs for all sections of the society

Economic Development for all: Sabka Saath, Sabka Vikas, Sabka Vishwas

Caring Society: Both humane and compassionate; Antyodaya as an article of faith.

Padma Awards 2020 Announced



Padma Awards is one of the **highest civilian Awards** of the country. Padma Awards are conferred in three categories, namely, **Padma**

Vibhushan, Padma Bhushan and Padma Shri. The Awards are given in various disciplines/fields of activities, viz. **art, social work, public affairs, science and engineering, trade and industry, medicine, literature and education, sports, civil**

service, etc. The awards are announced on the occasion of Republic Day every year.

- i. **Padma Vibhushan** is awarded for exceptional and distinguished service,
- ii. Padma Bhushan for distinguished service of high order and
- iii. **Padma Shri'** for distinguished service in any field.

This year the President has approved conferment of **141 Padma Awards including 4 duo cases** (in a duo case, the award is counted as one) as per list below. The list comprises **7 Padma Vibhushan, 16 Padma Bhushan** and **118 Padma Shri Awards**. 33 of the awardees are **women** and the list also includes 18 persons from the category of **Foreigners/NRI/PIO/OCI** and **12 Posthumous awardees**.

Indore tops national cleanliness rankings for first two quarters



The Union Ministry of Housing and Urban Affairs (MoHUA) has announced the results of the 1st and 2nd quarters of the Swachh Survekshan 2020.

Indore has topped the cleanliness charts for two consecutive quarters among cities with over 10 lakh population while Kolkata was the worst performer. Jamshedpur has topped the cleanliness charts for two consecutive quarters among cities with 1 lakh to 10 lakh population.

The rankings were conducted in a league format for the first time and were split into three quarters (April to June, July to

September and October to December 2019) and different categories based on the population of the city.

The rankings were based on collection, transportation, processing and disposal of waste.

Top three cities with over 10 lakh population in 1st quarter (April to June):

1. Indore (Madhya Pradesh)
2. Bhopal (Madhya Pradesh)
3. Surat (Gujarat)

Top three cities with over 10 lakh population in 2nd quarter (July to September):

1. Indore (Madhya Pradesh)
2. Rajkot (Gujarat)
3. Navi Mumbai (Maharashtra)

Republic Day 2020: India celebrates its 71st

Republic Day



The nation celebrated the **71st Republic Day** with a grand military parade and exhibition of its history, cultural diversity and strategic weaponry at the Rajpath, Delhi. This day is celebrated by all Indians and 26th of January has been declared as a national

holiday by the government of India. The Republic Day ceremony commenced with Prime Minister Narendra Modi paying homage to martyrs at the National War Memorial instead of Amar Jawan Jyoti. The National Flag was unfurled followed by the National Anthem with a booming 21-gun salute.

“Samvidhaan” announced as the Oxford Hindi Word of the Year 2019

Oxford University Press (OUP) named **“Samvidhaan”** (Constitution) the Oxford Hindi Word of 2019. It received widespread attention in the year which was witness to the spirit of the Indian Constitution being embraced across segments of the society. The word was chosen as 2019 saw the values of democracy, secularism, justice, liberty, equality and fraternity being tested on the touchstone of the Constitution or “Samvidhaan”.

”Samvidhaan” means a “body of fundamental principles or established precedents according to which a state or other organisation is acknowledged to be governed”.

India ranked 2nd in producer of Crude Steel



As per **World Steel Association** data, **India** became the **second-largest steel producer** of **crude steel** after China 2019 by replacing Japan. India’s crude steel production in 2019 was at 111.2 MT, an

increase of 1.7 per cent from 109.3 MT in 2018. China remains number one with 996.3 million tonnes in 2019. The United States and Russia rank fourth and fifth respectively.

Oscars Award 2020

The 2020 Oscars Awards has announced. it’s time to honour the movies of last year (2019) and the people directors, actors, writers, editors, and many more, who created them. The 92nd chapter of Hollywood’s most prestigious annual awards shows, overseen by the Academy of Motion Pictures Arts and Sciences.

Check the Category winners Here-

- Best Picture- **Parasite, Kwak Sin Ae and Bong Joon Ho, Producers**



- Actor in a Leading Role- **Joaquin Phoenix, Joker**
- Actress in a Leading Role- **Renee Zellweger, Judy**

Best sound mixing- **1917**

- Best sound editing- **Ford v Ferrari**
- Best supporting actress- **Laura Dern for Marriage Story**
- Documentary short feature- **Learning to Skateboard in a Warzone (If You're a Girl)**
- Documentary feature- **American Factory**
- Best costume design- **Jacqueline Durran, Little Women**
- Best production design- **Once Upon a Time...in Hollywood**
- Live-action short film- **The Neighbors' Window**
- Best adapted screenplay- **Taika Waititi, Jojo Rabbit**
- Best original screenplay- **Bong Joon-ho, Parasite**
- Animated short film- **Hair Love**
- Animated feature film- **Toy Story 4**
- Best supporting actor- **Brad Pitt, Once Upon a Time...in Hollywood**
- Best Music (Original Score)- **Joker, Hildur Guonadottir**
- Best Short Film (Animated)- **Hair Love**
- Best Directing Film- **Parasite, Bong Joon Ho**
- Best Cinematography- **1917, Roger Deakins**

- Best Writing (Original Screenplay)- **Parasite**
- Best Music (Original Song)- **“(I’m Gonna) Love Me Again” from Rocketman**
- Visual Effects- **1917**
- Makeup and Hairstyling- **Bombshell**

Bangladesh wins ICC U-19 Cricket World Cup 2020

Bangladesh has won the **ICC U-19 Cricket World Cup 2020** held in **South Africa**. Bangladesh Under-19 cricket team defeated **India** Under-19 team by 3 wickets to win the final of the



ICC U-19 Cricket World Cup 2020 held at **JB Marks Oval, Potchefstroom, South Africa**. This was the 13th edition of the tournament in which 16 teams participated from all over the world.

Bangladesh Under-19 cricket team has won the ICC U-19 Cricket World Cup for the first time in the tournament history.

India plans to launch Chandrayaan-3 by first half of 2021

According to the Minister of State in the Prime Minister’s Office, **Jitendra Singh**, a possible schedule for the launch of **Chandrayaan-3** is planned to be implemented in the **first half of 2021**. The preparation of Chandrayaan-3 has been done by taking lessons from the previously launched **Chandrayaan-2**, a



Moon mission which was launched in 2019, in which the Indian Space and Research Organisation (ISRO)'s Vikram Lander lost contact following a hard landing on the Moon's surface.

Chandrayaan-3 will be designed to increase design, capacity with a cost of around **Rs 610 crore**, including **Rs 360 crore** for the launch rocket. ISRO also decided to launch in the same area where Chandrayaan-2 launched, and would have a lander, rover and propulsion module like its predecessor.

Jitendra Singh also mentioned India's manned space mission Gaganyaan project, where 4 biological and 2 physical science experiments related to microgravity have been done

Prime Minister's address to the nation on combating COVID-19



As the whole world is fighting against the **COVID-19 pandemic**, Prime Minister of India **Narendra Modi** addressed his countrymen and made an appeal

to all Indians to stay indoors as much as possible to stop the

outspread of COVID-19 in India. Here are some key takeaways from his speech:

- He stated a mantra '**Hum Swasth, toh Jag Swasth**' that is the world will be healthy, if we stay healthy. He appealed to the people of India to stay away from crowds and gatherings, to avoid leaving our homes. This is called as '**Social Distancing**' which can play a critical role in these times of the global corona pandemic.
- He requested all the Indians to not step-out of our homes for the next few weeks, until and unless it is absolutely necessary.
- He also stated a term during his address to the nation i.e. "**People's curfew**" which means a curfew imposed for the people, by the people, on the people themselves. The "People's curfew" will be imposed on 22nd March 2020. He also requested the youth of India and the organizations like NCC, NSS, civil society to spread awareness about this people's curfew over the next 2 days.
- He also announced that the government of India has decided to set up a **COVID-19 Economic Response Task Force**, to be headed by the Finance Minister of India. Formation of Economic Response Task Force will ensure that all measures are being taken to reduce the economic difficulties and are effectively implemented.

RBI to infuse Rs 30,000 crore to boost liquidity

The **Reserve Bank of India** (RBI) will infuse liquidity of **Rs 30,000 crore** to maintain financial stability in the Indian economy. RBI has taken this decision to boost liquidity in order to ensure that all market segments function normally with adequate liquidity and turnover, as certain financial market segments are facing **stress** due to **COVID-19 outbreak**.



The Reserve Bank will infuse liquidity by purchasing of Government securities under **Open Market Operations** (OMOs) for a total amount of Rs 30,000 crores. The amount will be infused in two

tranches of Rs 15,000 crores each in the month of March 2020.

FM Nirmala Sitharaman announced Economic relief package during Lockdown

Finance minister **Nirmala Sitharaman** has announced a mega relief package of **1.7 lakh crore rupees** for the migrant workers and poor people affected by the lockdown amid COVID-19 outbreak. The scheme has been named **Pradhan Mantri Garib Kalyan Scheme**. This food security scheme will assist the economically weaker sections to bridge over the added challenge of lockdown and job loss during the worldwide outbreak of coronavirus.

Tokyo Olympics officially postponed until 2021

The **International Olympic Committee** and **Tokyo Olympic**



organizers agreed to move the Tokyo Games to **2021**. Japan's Prime Minister Shinzo Abe and the head of the International Olympic Committee agreed

to postpone the Tokyo 2020 Games by a year in an extraordinary

move, unprecedented in peacetime, as the world battles the coronavirus pandemic.

It will mark the first time in history that the start of an Olympics will be delayed to another year. The Opening Ceremony will not be held on July 24 as scheduled, but on an undetermined 2021 date, due to the coronavirus pandemic. The IOC President and the Prime Minister of Japan have concluded that the Games of the XXXII Olympiad in Tokyo must be rescheduled to a date beyond 2020 but not later than summer 2021, to safeguard the health of the athletes, everybody involved in the Olympic Games and the international community.

Reliance sets up India's 1st COVID-19 dedicated hospital in Mumbai

Reliance Industries Limited (RIL) has set up India's first **COVID-19** dedicated hospital in Mumbai. Reliance Foundation opens this Hospital in collaboration with the **Brihanmumbai Municipal Corporation (BMC)** in Mumbai. This hospital is funded by Reliance Foundation; the COVID-19 facility includes a negative pressure room that helps in preventing cross-contamination and helps control infection.

Twitter CEO pledges \$1 billion to combat COVID-19 pandemic



Chief Executive Officer of Twitter, **Jack Dorsey** has pledged to donate **\$1 billion** to charities working towards combatting the global **COVID-19 pandemic**. The donation of \$1 billion by the Twitter CEO seems

to be the largest donation pledged by a private individual in the fight against **COVID-19 pandemic**.

To fulfill the donation amount of \$1 billion, Jack Dorsey will move \$1 billion of his digital payments group “Square” equity i.e. 28% of his wealth, to #startsmall LLC to fund global COVID-19 relief.

Prime Minister announces Economic Package of Rs 20 Lakh Crore

Prime Minister of India **Narendra Modi** addressed his countrymen and announced an **Economic Package of Rs 20 Lakh crore**, giving stress on **land, labour, liquidity** and **law**. PM stressed on the local products and urged his countrymen to be “**Vocal About Local**”. Prime Minister also mentioned 5-Pillars to make India self-reliant. These **5 pillars** are:

1. **Economy**: An economy that brings quantum jump along with incremental change.
2. **Infrastructure**: An infrastructure that becomes the symbol of modern India.
3. **System**: A system which will be based on technology.
4. **Demography**: A vibrant demography which would be the strength as well as the source of energy for self-reliant India.
5. **Demand**: To improve demand and supply chain in India to enhance the Indian economy.

Nikkei Asia Prize 2020

An IIT Madras Professor Thalappil Pradeep has been selected for the Nikkei Asia Prize 2020 in the category of 'Science and Technology' for his pioneering work in nanotechnology-based water purification. The Nikkei Asia Prizes recognizes those individuals who have contributed to the region’s sustainable development and to a creation of a better future of Asia. The prize is conferred annually in three areas i.e. “Economic and Business Innovation“, “Science and Technology”, and “Culture and Community”.

Complete list of winners of the prize is as follows:

- Science and Technology: Professor Thalappil Pradeep (India)
- Culture and Community: Ram Prasad Kadel (Nepal)
- Economic and Business Innovation: Anthony Tan (Malaysia) & Tan Hooi Ling (Malaysia)

World Bank Releases “Global Economic Prospects (June 2020)”

World Bank has released its flagship report titled “**Global Economic Prospects (June 2020)**”. The report assesses the impressions of the pandemic and also examines the possible courses and outcomes. The report describes a grave near-term outlook and states that there is a contraction in **global GDP** which was **5.2 percent** in **2020** due to the **COVID-19 pandemic**.

The report assesses the impressions of the COVID-19 pandemic and also examines the possible courses and outcomes. It indicates the clear actions needed by the global community and national policymakers—to restrict the harm, recover, and rebuild better and stronger than before.

Indian Railways commissions 1st high rise Over Head Equipment



Indian Railways has commissioned the **first high rise Over Head Equipment (OHE)** and successfully ran a **double stack containers** in electrified territory on Western Railway. With this, **Indian Railways has become the first Railway** to run Double Stack Container train with high reach

pantograph in high rise OHE territory, which is a first of its kind in the entire world.

The first 1st high rise Over Head Equipment (OHE) has a contact **wire height of 7.57 metre** and it was operated successfully from **Palanpur & Botad** stations in **Gujarat** on 10th June 2020. This new achievement of Indian Railways will also boost the ambitious mission of Green India as its latest green initiative. This initiative is also expected to bring innovation, speed and customisation in freight operations.

Government of India bans 59 Chinese apps

The **Ministry of Electronics & Information Technology** has



announced that “**Government of India Bans 59 Chinese mobile apps**”, which are prejudicial to sovereignty and integrity of India, defense of India, the security of the state

and public order”.

The Ministry of Information Technology, invoking its power under section 69A of the Information Technology Act read with the relevant provisions of the Information Technology (Procedure and Safeguards for Blocking of Access of Information by Public) Rules 2009 and in view of the emergent nature of threats has decided to block 59 apps.

India elected as non-permanent member of UN Security Council

India has been elected as the **non-permanent member** of the **United Nations Security Council**. India has won the election for a two-year term after winning **184 votes in the 193-member General Assembly**.

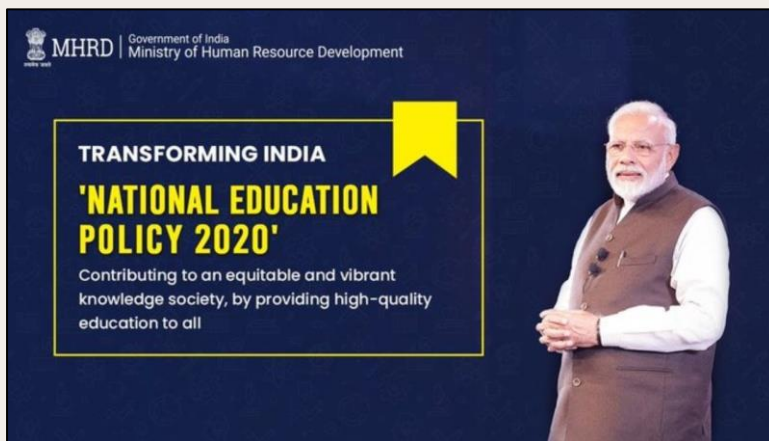
India won the non-permanent seat from the **Asia-Pacific category for the 2021-22 term** which will begin on 1st January 2021.

Earlier India has been elected as a non-permanent member of the Council for the following years: 1950-1951, 1967-1968, 1972-1973, 1977-1978, 1984-1985, 1991-1992 and 2011-2012.

Ireland, Mexico and Norway also won the Security Council elections along with India. The United Nations high-table comprises of five permanent members and 10 non-permanent members.

Union Cabinet Approves National Education

Policy 2020



The Union Cabinet chaired by the Prime Minister Shri Narendra Modi has **approved** the **National Education Policy 2020**.

The National Education Policy

2020 will **replace** the **thirty-four year old National Policy on Education (NPE), 1986**.

National Education Policy 2020 is the **first education policy** of the **21st century** and aims to bring transformational reforms in both school and higher education sectors.

The new policy is based on the **foundational pillars** of **Access, Equity, Quality, Affordability and Accountability**.

It has a **target** of **50% Gross Enrollment Ratio** by **2035** and provision for multiple entry and exits.

The Global E-waste Monitor Report 2020

The **Global E-waste Monitor 2020** is a collaborative product of the **Global E-waste Statistics Partnership (GESP)**, formed by the United Nations University (UNU).

According to a recent **United Nations University (UNU) report**, global e-waste will increase by 38% in the decade between 2020 and 2030.

The report provides a national and regional analysis on e-waste quantities and legislative instruments and makes predictions until 2030.

Data Analysis of 2019:

- There was 53.6 million tonnes (MT) e-waste in 2019, which is a nearly 21% increase in just five years.
- Asia generated the greatest volume (around 24.9 MT) followed by America (13.1 MT) and Europe (12 MT). Africa and Oceania generated 2.9 MT and 0.7 MT respectively.
- Less than 18% of the e-waste generated in 2019 was collected and recycled.
- The number of countries that have adopted a national e-waste policy, legislation or regulation has increased from 61 to 78 and includes India.

World Bank approves \$400 mn for rejuvenation of river Ganga



World Bank has signed a loan agreement of **\$400 million** with **Government of India** to enhance support for the **Namami Gange programme**.

The loan agreement aims to make the Ganga a clean and healthy river.

The loan amount of **\$400 million** comprises a loan of **\$381 million** and a proposed Guarantee of up to **\$19 million**.

The new project will aim to stem the pollution levels in the iconic river and work towards strengthening the management of the river basin which is home to more than **500 million people**.

IIT Madras Tops Atal Rankings (ARIIA) 2020



The **Indian Institute of Technology, Madras** has retained the top position in the **'Atal Ranking of Institutions on Innovation Achievements,' (ARIIA) 2020** for being the best

centrally funded institution in India. The 2020 'Atal Ranking of Institutions on Innovation Achievements (ARIIA),' was released by **Vice President Venkaiah Naidu**, in presence of Union Minister of Education, Ramesh Pokhriyal 'Nishank,' in a virtual event on 18 August 2020.

The top five centrally funded institutions in the list:

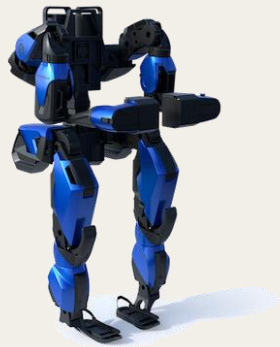
1) IIT Madras, 2) IIT Bombay, 3) IIT Delhi, 4) IISc Bengaluru, 5) IIT Kharagpur

Source

The Monthly Hindu Review | Current Affairs

7 Technology Innovations Are Coming to Disrupt the Construction Industry in 2020

1. Forget the Runway; Try Walking the Girder in These Wearables



Construction is an inherently dangerous job. It requires working at dizzying heights and operating heavy machinery, often in harsh or unpredictable weather conditions. That's why the

industry has long required workers to wear protective gear such as hard hats, glasses, safety vests, and boots.

But what if that gear had brains *and* brawn? Smart wearables are gaining traction, such as exoskeleton suits that allow construction workers to lift up to 200 pounds. By bearing less weight, workers can experience less muscle fatigue and reduce the chances of occupational injury. It's no wonder Ford factory workers are already using them.

Then there are smart work boots, such as the ones by construction-technology startup Sole Power, which were tested by a select group of companies this year. Embedded sensors and communication technology allow for location tracking as well as the ability to easily hold relevant parties responsible in real time: RFID tags in the boots can automatically verify that tasks are complete for field service or equipment checks.

2. Get Ready for 5G Networks to Fire Up Blazing-Fast Connections on the Jobsite

5G networks are expected to launch across the world in 2020 and will impact construction efficiency in unprecedented ways. With faster and more reliable connections, construction design using artificial intelligence and BIM (Building Information Modeling) will be even more efficient, as 5G networks will allow everyone involved on a construction project to access all ongoing project information on a single design platform more rapidly.

5G also offers communication improvement in tele-remote (essentially, remote-control) operations and in real-time video feedback, which is critical for efficiency gains and safe operation. It even makes it possible for further development of tele-remote equipment and robotics that can recognize signals, receive input, map coordinates or instructions, make split-second decisions, and share communication.

3. The Construction Industry Manages—and Minimizes—Its Carbon Footprint

Tools used for monitoring and measuring carbon emissions are showing a promising future in construction. Sweden-based Skanska USA, for example, was able to reduce embodied carbon emissions on projects by up to 30% using its Embodied Carbon in Construction Calculator (EC3), an open-source tool that calculates carbon emissions embodied within building materials. Using Skanska's tool, contractors and designers can examine data for common building materials and create an overall embodied carbon footprint for a project. The tool provides data transparency, helping to reduce a project's carbon footprint even before it begins.

Taking carbon-footprint reduction even further, the XPRIZE Foundation is hosting a competition offering \$20 million in prizes for innovations that help carbon-dioxide-producing power plants transform carbon dioxide into viable construction materials.

4. Round and Round: Circular Construction Uses and Reuses and Reuses Again

A circular economy is an economic system that aims to eliminate waste and promote the continual use of resources. Considering construction today consumes 42 billion tons of resource materials—with 1 to 2 billion tons (one-third of the global total) going to landfills—it's certainly a sector worth shaking up.

That's how Danish philanthropic association Realdania came to launch the Circular Construction Challenge to find a solution for removing waste from the equation while simultaneously creating a valuable resource. Some of the challenge's winning ideas include the development of building materials that can grow from organic waste and fungal spores, and the reuse of a previous-generation building's high-quality waste (for example, clay pantiles and wooden rafters) to build sheds that last for the next generation.



Plastic Road uses post-consumer plastic waste to build sustainable roads from plastic. The world's first installation was in Zwolle, Netherlands, in the form of a 98-foot bike path. The road has

sensors that collect data (to use for further development) and its own stormwater-management system.

Another example of upcycling plastic into building materials is Israeli startup UBQ's technology, which sorts, grinds, chops, shreds, cleans, and heats garbage into pellets that can be made into everyday items such as trays and packing crates.

5. (Rise of the) Machine Learning and Artificial Intelligence

Machine learning and artificial intelligence (AI) are now helping contractors use their data to make better decisions in ways they

couldn't before. For example, in the past, when productivity and performance data was available, it was too complex to mine through in order to help with planning.

Now, AI is now being used to help with scheduling by making informed suggestions as to what durations, sequences, and costs of work should be. Trade Tapp and Construction IQ, for example, use AI to provide general contractors with subcontractor qualification, analysis, and custom risk-reduction recommendations.

6. Prefab and Modular Construction Make Their Way Into Suburbia

Prefabricated homes are making big waves—they cost less to make and are way cheaper to buy than traditional houses, especially in mega-expensive regions such as California's San Francisco Bay Area. They have also proven to be more durable and require less time to build than traditional homes.



The city of San Jose, CA, recently announced a new express-lane program that makes it easier and more attractive to obtain a permit to build an accessory dwelling unit (ADU), a secondary

housing unit built on a single-family lot. Inspired by the Netherlands, the first ADUs approved by the city are made by Redwood City, CA-based Abodu, which offers 495-square-foot homes for about \$199,000 that can be delivered and installed within two weeks of initiation.

ADUs are also being used to serve a critical need in disaster areas. The Sunset BUD Living Home by Plant Prefab is an ADU

designed as temporary living for the Malibu, CA fire victims, using factory construction that is faster, more cost-effective, and more reliable than on-site construction.

7. Data Is Paramount in Connected Construction and Block chain

Connected construction is based on the idea that data should be at the heart of the construction ecosystem of jobsites, machines, and workers. While the concept seems basic, data—especially building operations information—is often lost between handoffs from architect to engineer to contractor to owner, due to the use of different platforms at different stages of the construction.

Block chain is one of the most disruptive technologies to touch construction because of its power to record, enable, and secure huge numbers and varieties of transactions, holding everyone who touches it accountable. On top of that, Geographic Information Systems (GIS) provide vital geographical data that planners, designers, and engineers should always consider throughout the construction-planning process. With the help of block chain, GIS, and connected construction workflows, this data can be retained much more reliably.

Source

<https://www.autodesk.com/redshift/construction-technology-2020/>



Smart City Updates

Finance minister Nirmala Sitharaman has proposed to develop 5 new smart cities. However, she didn't make any announcement of budgetary allocation and selected cities.



Under the Smart City Mission India, 100 smart cities have been selected since 2015. All 100 cities have incorporated Special Purpose Vehicle (SPV), City Level Advisory Forums (CLAF) and appointed Project Management Consultants (PMC) to appraise, approve, implement, manage, operate, monitor and evaluate the projects.

According to the Economic Survey 2019-20, as much as 5,151 smart city projects with a cost of Rs 2 lakh crore are in various stages of implementation among the 100 smart cities since the inception of Smart City Mission.

While the 2020-21 budget has not mentioned any particular budget increment for the Smart Cities Mission, 2019 budget had allocated Rs 6,450 crore for the Smart Cities Mission for 2019-2020 against Rs 6,169 crore in 2018-2019, a 4.5 percent hike than the last year.

The 2018 budget had seen a major jump in budget allocation over 50 percent increase for smart cities from Rs 4,000 crore for 2017-2018 to Rs 6,169 crore for 2018-2019.

Under the Smart city mission, the center allocates Rs 500 crore to each of the cities for implementing projects selected as Smart City. This amount is matched with a grant of the same amount by the respective state.

Source

<https://www.expresscomputer.in/news/budget-2020-india-to-have-five-new-smart-cities/46078/>

Civil Engineering Personality

Sudhir K. Jain (born 1959) is a civil engineer and professor at Indian Institute of Technology Gandhinagar. He is currently serving his third term as the director of the Indian Institute of Technology Gandhinagar. He has been carrying out intensive research and development in the fields of Seismic Design Codes, Dynamic of Buildings and Post Earthquake Studies. Beside these, Prof. Jain has actively participated in teaching, research activities and



development in Earthquake Engineering focused on developing countries. He is an elected fellow of Indian National Academy of Engineering. He has also served as the president of International Association of Earthquake engineering (IAEE) from 2014 to 2018.

In January 2020, Dr. Jain was conferred with the Padma Shri award by Government of India.

He earned Bachelor of Engineering from the University of Roorkee (now known as Indian Institute of Technology Roorkee) in 1979, and Masters and Doctoral degrees from the California Institute of Technology, Pasadena in 1980 and 1983 respectively.

Awards and honors

- Thomson Memorial Gold Medal (1979)
- Robert A Millikan Fellowship (1982)
- Padma Shri (2020)
- IIT Roorkee Distinguished Alumnus Award (2018)

Under Dr. Jain's leadership, IITGN has introduced several innovations in curriculum, student affairs, faculty recruitment and institutional management to inculcate and promote

excellence by faculty and students. He led the development of IITGN's new campus, which has won several national awards and is the first campus in India to receive the 5-star GRIHA-LD rating.



Dr Jain has made major contributions to earthquake engineering practice and education in India. He was instrumental in the development of several important seismic codes in India, and has trained thousands of professional engineers and college teachers in earthquake engineering through his continuing education programmes. He established the National Information Centre of Earthquake Engineering (NICEE) at IITK and developed the National Programme on Earthquake Engineering Education (NPEEE), supported by the Government of India. Dr. Jain has served as consultant for several major projects, such as bridges, petrochemical pipelines and concrete dams and has published more than 150 scholarly papers. His research interests include the study of damaging earthquakes, reinforced concrete buildings, bridges, and seismic codes.

Source

https://en.wikipedia.org/wiki/Sudhir_K._Jain

www.iitgn.ac.in

Ahmedabad Metro is a rapid transit system for the cities of Ahmedabad, Gandhinagar in Gujarat, India. It is being built by Gujarat Metro Rail Corporation (GMRC) Limited (formerly Metro-Link Express for Gandhinagar and Ahmedabad or MEGA), a Special Purpose Vehicle company constituted in 2018 to implement all metro projects in Gujarat.

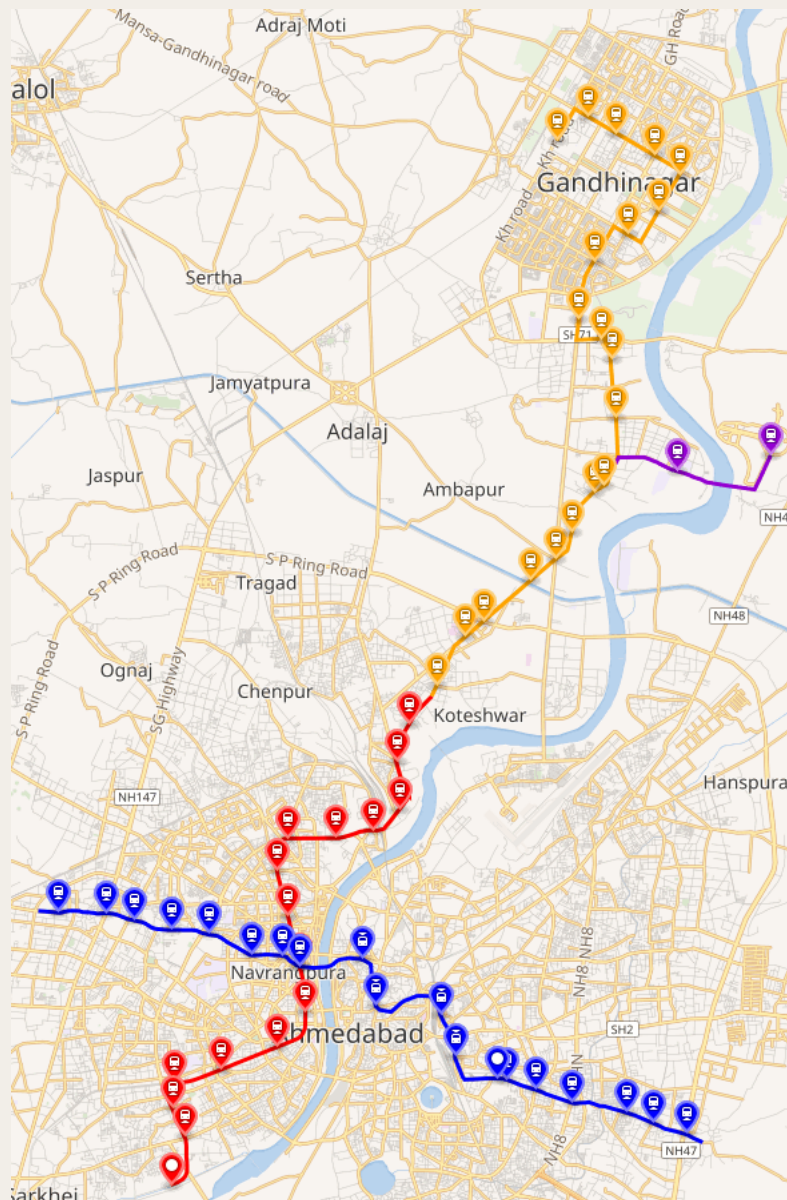


The company was established in February 2010 and the Phase-1 of the project was approved in October 2014. Construction of Ahmedabad Metro started on 14 March 2015, and Phase-1 is expected to be completed by 2023. A section of east-west corridor was inaugurated on 4 March 2019 by the Indian Prime Minister Narendra Modi and was opened to the public on 6 March 2019.

Phase 2 with a length of 28.254 km was approved by India's central government on February 19, 2019. Tendering for its construction began in January 2020. Construction work is expected to begin by 2021.

In 2003, Gujarat Infrastructure Development Board carried out the study for urban transport between Gandhinagar and Ahmedabad. It also carried out the detailed project report through Delhi Metro Rail Corporation and RITES and submitted it in June 2005 and received Central Government's approval in

the same year. Following the estimated cost of ₹ 4295 crores and the study of the viability of the project, it was abandoned in 2005 to give priority to the Ahmedabad BRTS and suburban railway projects. In 2008, considering the future developments in and around Ahmedabad and Gandhinagar, the project was revived and new corridors were designed to make the project viable.



The special purpose vehicle company, Metro Link Express for Gandhinagar and Ahmedabad (MEGA) Company Ltd (now renamed GMRC), was established by Government of Gujarat on 4 February 2010 with Rs 200 crore. Later in 2014, it was decided that the Central Government will own 50% of the company.

On 19 October 2014, Union Cabinet of India approved ₹10,773 Crores for the Phase-1. The Central government approved use of unused Western Railways land along the Botad- Sabarmati meter gauge line in November 2014. The original plan of Metro along Ashram Road was tweaked and the track was moved westward. The new plan added cost of ₹ 500 crore and two more stations. It helped by fewer problems in land acquisition and less congestion on Ashram Road. In 2015 budget of Gujarat, ₹ 611 crore was further allocated for the metro. The ground breaking ceremony was held on 14 March 2015 for the construction of 6.5 km long Vastral – Apparel Park stretch of east-west corridor in presence of then Gujarat Chief Minister, Anandiben Patel. The ground-breaking ceremony for North-South Corridor was held on 17 January 2016 in presence of the then Gujarat CM Anandiben Patel. The work started in March 2016. The Indian Railways permitted the construction of north-south corridor stretch on its land in June 2016.

Japan International Co-operation Agency (JICA) agreed to fund ₹ 5968 Crores for Phase-1 of the project in November 2015 and the first trench of ₹ 4456 Crores was released in 2016.

The Government of Gujarat gave approval for Phase-2 of project in October 2017 and revised it in October 2018. In February 2019, the Union cabinet approved the Rs 5384.17 crore second phase of the project. It will extend from Motera to Mahatma Mandir in Gandhinagar,

(22.838 km) with a separate line from Gujarat National Law University (GNLU) linking Pandit Deendayal Petroleum University (PDU) and GIFT City (5.416 km). The Phase-2 will have total 28.254 km long elevated corridor with 22 stations.

The trial runs were carried out in February 2019 on 6.5 km long Vastral – Apparel Park section of Phase-1. The section was inaugurated on 4 March 2019 by Indian Prime Minister Narendra Modi. He also laid the foundation of Phase 2. It opened to the public on 6 March 2019.

Network information

Phase-1 (under construction)

- Total Length: 40.03 km (24.87 mi)
 - North–south corridor: 18.87 km (11.73 mi)
 - East–west corridor: 21.16 km (13.15 mi)
- Elevation:
 - Elevated: 33.50 km (20.82 mi)
 - Underground: 6.53 km (4.06 mi)

Phase-2 (approved)

- Total length: 28.254 km (all elevated)
 - Motera-Mahatma Mandir corridor: 22.838 km
 - Gujarat National Law University (GNLU)-GIFT City corridor: 5.416 km

Source

https://en.wikipedia.org/wiki/Ahmedabad_Metro

English Comprehension

Mike and Morris lived in the same village. While Morris owned the largest jewelry shop in the village, Mike was a poor farmer. Both had large families with many sons, daughters-in-law and grandchildren. One fine day, Mike, tired of not being able to feed his family, decided to leave the village and move to the city where he was certain to earn enough to feed everyone. Along with his family, he left the village for the city. At night, they stopped under a large tree. There was a stream running nearby where they could freshen up themselves. He told his sons to clear the area below the tree, he told his wife to fetch water and he instructed his daughters-in-law to make up the fire and started cutting wood from the tree himself. They didn't know that in the branches of the tree, there was a thief hiding. He watched as Mike's family worked together and also noticed that they had nothing to cook. Mike's wife also thought the same and asked her husband "Everything is ready but what shall we eat?" Mike raised his hands to heaven and said "Don't worry. He is watching all of this from above. He will help us." The thief got worried as he had seen that the family was large and worked well together. Taking advantage of the fact that they did not know he was hiding in the branches, he decided to make a quick escape. He climbed down safely when they were not looking and ran for his life. But, he left behind the bundle of stolen jewels and money which dropped into Mike's lap. Mike opened it and jumped with joy when he saw the contents. The family gathered all their belongings and returned to the village. There was great excitement when they told everyone how they got rich.

Morris thought that the tree was miraculous and this was a nice and quick way to earn some money. He ordered his family to pack some clothes and they set off as if on a journey. They also stopped under the same tree and Morris started commanding everyone as Mike had done. But no one in his family was willing

to obey his orders. Being a rich family, they were used to having servants all around. So, the one who went to the river to fetch water enjoyed a nice bath. The one who went to get wood for fire went off to sleep. Morris's wife said "Everything is ready but what shall we eat?" Morris raised his hands and said, "Don't worry. He is watching all of this from above. He will help us." As soon as he finished saying, the thief jumped down from the tree with a knife in hand. Seeing him, everyone started running around to save their lives. The thief stole everything they had and Morris and his family had to return to the village empty handed, having lost all their valuables that they had taken with them.

Based on the Passage, answer the following questions:

1) Why did Mike and his family decide to rest under the thief's tree?

- A) Being a large family, they knew that they could easily defeat the thief
- B) It was a convenient spot for taking a halt at night
- C) There was a stream nearby and wood enough to build a house
- D) That was the only large tree that could shelter their large family

Solution: B)

2) Which of the following best describes Morris?

- A) He was a rich businessman
- B) He bullied his wife
- C) He paid his servants well
- D) He was greedy and imitated Mike

Solution: D)

3) What did Mike mean when he said “He is watching all this from above”?

- A) He had spotted the thief and wanted to scare him
- B) He was telling his wife to have faith in god
- C) It was just a warning for his family members to stick together
- D) He was begging the thief to help his family

Solution: B)

4) Why did the thief return to the tree?

- A) To wait for Mike to return
- B) To set up a trap
- C) To wait for Morris’s family
- D) Not mentioned in the passage

Solution: D)

5) How did the fellow villagers react to Mike getting rich overnight?

- A) They were jealous of him
- B) They were very excited
- C) They followed his example
- D) They envied him

Solution: B)

Source

<https://www.geeksforgeeks.org/comprehension-passages/>

Quantitative Aptitude

If one-third of one-fourth of a number is 15, then three-tenth of that number is:

- A. 35
- B. 36
- C. 45
- D. 54

ANS: D

Three times the first of three consecutive odd integers is 3 more than twice the third. The third integer is:

- A. 9
- B. 11
- C. 13
- D. 15

ANS: D

It was Sunday on Jan 1, 2006. What was the day of the week Jan 1, 2010?

- A. Sunday
- B. Saturday
- C. Friday
- D. Wednesday

ANS: C

Two ships are sailing in the sea on the two sides of a lighthouse. The angle of elevation of the top of the lighthouse is observed from the ships are 30° and 45° respectively. If the lighthouse is 100 m high, the distance between the two ships is:

- A. 173 m
- B. 200 m
- C. 273 m
- D. 300 m

ANS: C

A, B and C can do a piece of work in 20, 30 and 60 days respectively. In how many days can A do the work if he is assisted by B and C on every third day?

- A. 12 days
- B. 15 days
- C. 16 days
- D. 18 days

ANS: B

Source

<https://www.indiabix.com/>



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