

GS ANALYST

CURRENT AFFAIRS

Daily

NEWS HEADLINE

- El Nino is coming
- India to have more people than China by mid-2023: UN
- India launches National Quantum Mission
- Conservationists slam proposal to export monkeys to China
- CSE launches coastal cities' coalition to fight marine litter crisis

SHORT NEWS

- Exercise Orion
- Ninth Schedule of the Indian Constitution
- SIDBI Launches 'Mission 50K-EV4ECO'
- Scientists identifies Electromagnetic Ion Cyclotron (EMIC) waves

EDITORIAL

- India-UAE cooperation to sow regional food security

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EDITORIAL

INDIA-UAE COOPERATION TO SOW REGIONAL FOOD SECURITY

CONTEXT:

The IndiaUAE food security partnership stands to benefit from multiple points of convergence.

◎ INDIA'S CAPABILITIES

- **Global agri-export powerhouse-** India has built its status as a global agriexport powerhouse using its vast tracts of arable land, a highly favorable climate, and a large and growing food production and processing sector.
- **Public Distribution System-** India runs the Public Distribution System, the world's largest food subsidy programme, providing nearly 800 million citizens with subsidised grains
- **Global food security dialogue-** As a part of its G20 presidency, India is promoting the consumption and farming of millets — nutritious, drought resistant, sustainable, crops — that demonstrate the resilience focus that India offers to the global food security dialogue.

◎ WHAT THE UAE BRINGS TO THE TABLE?

- **Investments in food parks-** During the I2U2 (India, Israel, the United Arab Emirates and the United States) summit, the UAE committed \$2 billion in investment towards constructing food parks in India.
- **Logistics and Infrastructure pipelines-** Given the food corridor's incredible commercial potential, several UAEbased companies have expressed interest in constructing a supporting logistics and infrastructure pipeline to accelerate trade and reinforce the food corridor.
- **Agriota-** The Dubai Multi Commodities Centre, the UAE's largest free trade zone, launched Agriota, an agritrading and commodity platform to link Indian farmers to food companies in the UAE.

◎ BENEFITS FOR INDIA

- **Employment opportunities-** These projects will generate lakhs of non-farm agrijobs, while enabling farmers to discover better prices for their products.
- **Bigger global marketplace-** Bolstered by the UAE's infrastructural capabilities, India's agricultural products will have more resilient and diversified pathways to the global marketplace.
- **Inclusive future of food-** As it sets the global developmental agenda, India can look to leverage and strengthen trade pathways with the UAE to forge a sustainable, inclusive, efficient, and resilient future of food.

EL NIÑO IS COMING

SYLLABUS MAPPING

- **Subject:** Geography (GS-I)
- **Sub-topic:** Important Geophysical Phenomenon

CONTEXT:

As per the prediction of most forecast models, the climate system's biggest player – El Niño – will return for the first time in nearly four years.

How El Niño affects the planet?

- **Wet and dry areas:** The warm water affects air currents that leave areas wetter or drier than usual.
- **Storms:** It can ramp up storms in some areas, like the southern U.S., while tending to tamp down Atlantic hurricane activity.
- **Impact on marine life:** El Niño can also wreak havoc on the many marine ecosystems that support the world's fishing industries, including coral reefs and seagrass meadows.
- **Extreme ocean warming:** Specifically, El Niño tends to trigger intense and widespread periods of extreme ocean warming known as marine heat waves.
- Global ocean temperatures are already at record highs, so El Niño-induced marine heat waves could push many **sensitive fisheries to a breaking point**.

In the **Bay of Bengal east of India**, interactions between El Niño and a tropical air flow pattern known as the **Walker Circulation** elevate the risk for marine heat waves.

How would it impact India?

- **Affected monsoon:** India's agricultural production depends on the southwest monsoon, which accounts for 75% to 90% of the total annual rainfall from June to September. El Niño-Southern Oscillation (ENSO) significantly affects the southwest monsoon.
- **Drought:** The monsoon-disrupting weather pattern causes climate chaos across the globe and, often, drought in India.

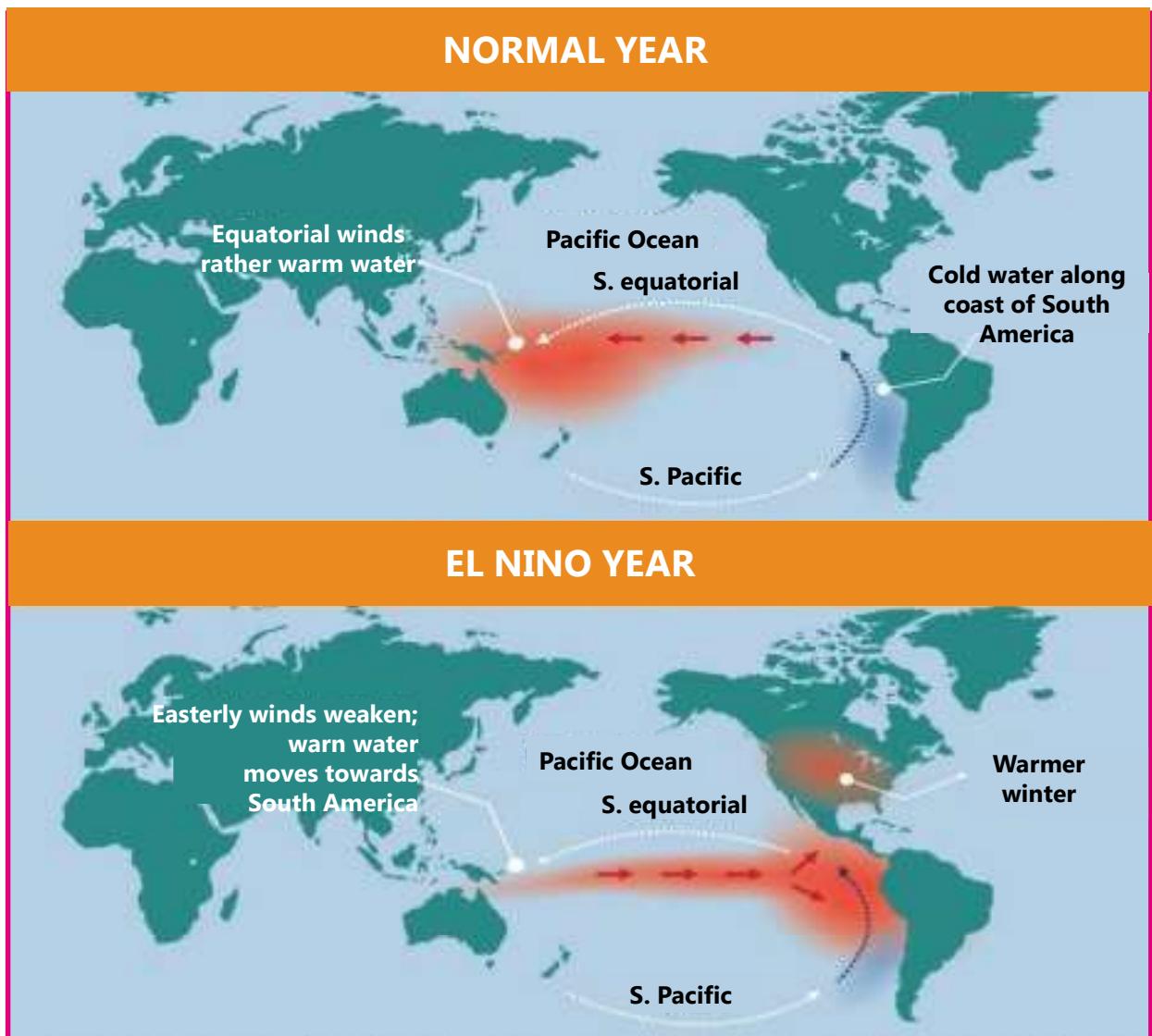
Between 2001 and 2020, India saw **seven El Niño years**. Of these, four resulted in droughts (2003, 2005, 2009-10, 2015-16). These years also saw kharif or summer-sown farm output decline by 16%, 8%, 10% and 3%, stoking inflation. Kharif harvests account for nearly half of the country's annual food supply.

Back To Basics

El Niño:

- ▶ El Niño is one side of the climatic coin called the El Niño-Southern Oscillation (ENSO). It's the heads to La Niña's tails.
- ▶ It is classified as a periodic fluctuation in sea surface temperature (SST) across the central and eastern tropical Pacific Ocean.
- ▶ It is triggered by a warming of the eastern equatorial Pacific Ocean
- ▶ El Niño occurs **every 2-7 years** and can last anywhere between **nine months and two years**.

- ▶ El Niño is the warm phase of the **El Niño Southern Oscillation (commonly called ENSO)** and is associated with a band of warm ocean water that develops in the central and east-central equatorial Pacific (**between approximately the International Date Line and 120°W**), including off the Pacific coast of South America.



La Niña is the opposite of El Niño and is characterised by cooler currents in the equatorial eastern Pacific.

□ **El Niño Southern Oscillation (ENSO):**

- ▶ The combined phases of **La Niña and El Niño** are termed **El Niño-Southern Oscillation (ENSO)**.
- ▶ The phenomenon affects **rainfall patterns, global atmospheric circulation, and atmospheric pressure across the planet**.
- ▶ In the neutral state, (neither El Niño nor La Niña) trade winds blow east to west across the surface of the tropical Pacific Ocean, bringing warm moist air and warmer surface waters towards the western Pacific and keeping the central Pacific Ocean relatively cool.

INDIA TO HAVE MORE PEOPLE THAN CHINA BY MID-2023: UN

SYLLABUS MAPPING

- **Subject:** Society (GS-I)
- **Sub-topic:** Population and Associated Issues

CONTEXT:

India is probably the world's most populous country already. The latest estimates from the United Nations (UN) say India's population is expected to surpass that of mainland China by around 3 million people by the end of June 2023.

Key-highlights of the UN Report

According to demographic data from the United Nations Population Fund's (UNFPA)-

- The UN report estimates India's population will hit 1428.6 million by mid-2023, while China's (excluding Hong Kong and Macao, Special Administrative Regions of China, and Taiwan Province of China) is estimated to reach 1425.7 million.
- Asia's third-largest economy will soon house almost a fifth of humanity, more than the populations of Europe, Africa, or the Americas.
- **Distant third:** The **United States** is estimated to be a distant number three in the rankings, with nearly 340 million people.
- **The report says eight countries will account for half the projected growth in global population by 2050:** the Democratic Republic of the Congo (DRC), Egypt, Ethiopia, India, Nigeria, Pakistan, the Philippines and Tanzania.

Grouping the population

- **25 percent** of India's population is estimated at below 14 years old
- **18 percent** is estimated in the 10-19 year age group
- **26 percent** in the 10-24 year bracket
- **68 percent** in the 15-64 year age group
- **7 percent** is estimated to be over 65 years old
- In contrast, 17% of China's population is estimated to be below 14 years of age, and 14 percent is estimated to be above 65 years old.

What does the Indian government's data show?

- Data from the Indian government, meanwhile, says India's annual population growth has averaged 1.2 percent since 2011, compared with 1.7 percent in the 10 years previously.

Cause of Overpopulation

- Poor livelihood has encouraged the country's poor and illiterate population reproducing at a higher rate than their middle- and high-income counterparts.
- Lack of family planning/unawareness
- Poor contraceptives use
- Decline in death rate, better medical capabilities
- Agricultural advancements

What are the issues/challenges?

- **Burden on resources:** With a large population, prevalent job crisis and climate change directly affects its limited resources. India home to 18% of the global population has only 4 percent of its water resources.
- **Environmental degradation:** This rapid growth is putting immense pressure on India's resources, and is contributing to environmental degradation, poverty, and social unrest.

- **Burden on land:** With an increase in population, the land holdings will become smaller, also because land is likely to be diverted for non-farming purposes.

Looking at the positive side

- India could use this potential demographic advantage (half its population is under the age of 30) to become the world's fastest-growing major economy.
- The population needs to be seen as a source of innovation, new thinking and lasting solutions.

Where India needs to work now?

India needs to advance on the given broad fronts to fully cash in on its demographic dividend and reshape the global economy in the process –

- Urbanization
- Infrastructure
- up-skilling and broadening its labor force
- boosting manufacturing
- Social security and universal health
- Demographic liability
- Resource allocation and Achieving SDGs
- Poverty and quality of life

INDIA LAUNCHES NATIONAL QUANTUM MISSION

SYLLABUS MAPPING

- | | |
|---|---|
| • Subject: Science & Technology (GS-III) | • Sub-topic: Science & Technology in India |
|---|---|

CONTEXT:

The Union Cabinet cleared Rs 6,003 crore National Quantum Mission seeking to realise a host of frontier technologies related to quantum computing, quantum communication and quantum sensing that only a handful of countries possess.

Background

- The new mission comes four years after the central government in December 2018 announced Rs 3,660 crore **National Mission on Cyber-Physical Systems**, which is being executed through 25 hubs.

What is the National Quantum Mission?

- **Duration:** Eight years
- **Verticals:** The mission involving research institutions and industry will have four verticals
 - ▶ three on quantum computing, communication and sensing
 - ▶ a fourth one on developing novel materials and devices that would aid in the three core programmes
- **Aim:** To accelerate quantum technology-led economic growth and nurture the ecosystem in the country.
- The new mission targets developing intermediate scale quantum computers with 50-1000 physical qubits in eight years in various platforms like superconducting and photonic technology
- **Global race:** India will be the seventh country to have a dedicated quantum mission after the US, Austria, Finland, France, Canada and China.
 - ▶ All these countries are also at the R&D stage.

What is Quantum technology?

- Quantum technology is a class of technology that works by using the principles of quantum mechanics (the physics of sub-atomic particles), including quantum entanglement and quantum superposition.
- Example-** Smartphone is a type of quantum technology – its semiconductors use quantum physics to work.

What is Qubit?

- A qubit (or quantum bit) is the quantum mechanical analogue of a classical bit.
- In classical computing the information is encoded in bits, where each bit can have the value zero or one.
- In quantum computing the information is encoded in qubits.

How Quantum technology can be a good ‘solution’?

- Effective functioning:** In modern day computing, information is relayed and stored in binary digits or bits, that is, 0 or 1. In quantum computing, information sharing, and storage is done in qubits, which exist as 0 or 1 or a combination of both.
 - This allows for a quantum computer to perform a multitude of applications at the same time, at a much faster rate, surpassing the processing ability of a conventional computing system.
- Increased processing capabilities:** Quantum computers will exponentially increase the processing capabilities of a modern-day computer and address impediments linked to combinatorics.
- Wide range of application:** It has immense potential in a wide range of applications from ultra secure military communication to extra-precise MRI machines.
- Multiple benefits:** Near-term and long-term quantum applications will:
 - augment AI solutions
 - improve financial forecasting
 - drastically reduce failures in the manufacturing sector
 - accentuate drug development
 - push for better cybersecurity paradigms

How this mission will give India a quantum leap?

- Valuable deliverables:** Satellite-based secure quantum communications between ground stations over a range of 2000 km within India, long distance secure quantum communications with other countries, inter-city quantum key distribution over 2000 km as well as multi-node quantum network with quantum memories are also some of the deliverables of the mission.
- Development of atomic systems:** The mission will help develop magnetometers with high sensitivity in atomic systems and atomic clocks for precision timing, communications and navigation.
- Development of quantum materials:** It will also support design and synthesis of quantum materials such as superconductors, novel semiconductor structures and topological materials for fabrication of quantum devices.
- Beneficial for different sectors:** The mission would greatly benefit communication, health, financial and energy sectors as well as drug design, and space applications.
- Boost to national priorities:** It will provide a huge boost to National priorities like Digital India, Make in India, Skill India and Stand-up India, Start-up India, Self-reliant India and Sustainable Development Goals (SDG).

CONSERVATIONISTS SLAM PROPOSAL TO EXPORT MONKEYS TO CHINA

SYLLABUS MAPPING

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| • Subject: Environment (GS-III) | • Sub-topic: Conservation, Biodiversity |
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CONTEXT:

Zoologists and conservationists in Sri Lanka slammed a recent government proposal exploring the export of monkeys to China, terming it an ad-hoc, illegal, and short-sighted response to a long-standing human-animal conflict.

About the species

- Macaca sinica (Toque Macaque) is a species of primates in the family **Old World monkeys**.
- They are **diurnal herbivores**.
- Toque macaques are the **smallest species of Macaca**. They have a golden brown coat on their dorsal surface and white hair on their ventral surface.
- Toque macaque monkeys are classified as **endangered** on the **International Union for Conservation of Nature (IUCN) red list**.
- The monkeys are **endemic to Sri Lanka**.

What is Sri Lanka's plan?

- The South Asian nation is apparently planning to export 1,00,000 endangered monkeys to China to place in 1,000 of its zoos.
- **Debt-trap:** China is one of Sri Lanka's biggest bilateral lenders and the nation will try to fulfil the request.
- **Monkey problem:** Monkeys are considered pests in Sri Lanka because they destroy crops and raid villages in search of food, and sometimes attack people.

CSE LAUNCHES COASTAL CITIES' COALITION TO FIGHT MARINE LITTER CRISIS

SYLLABUS MAPPING

- | | |
|--|----------------------------------|
| • Subject: Environment (GS-III) | • Sub-topic: Conservation |
|--|----------------------------------|

CONTEXT:

Delhi-based non-profit Centre for Science and Environment (CSE) has launched a coalition of coastal cities to fight marine litter pollution across India.

What is the coastal cities' coalition?

- The coastal cities' coalition will focus on combatting the scourge of marine litter across the country.
- It will be a platform for further research, capacity building and advocacy on the subject.
- **Key problems:** absence of adequate research-driven data, lack of synergy in policy and practice among institutions connected to the causes of marine litter, and an unmet need for investment in a communication strategy to engage with citizens, fishing communities and industrial establishments.

Current policies

- single-use plastic ban
- EPR (extended producer responsibility)

About the problem

- The problem of marine litter is a serious trans-boundary issue.
- About 80 per cent of marine litter comes from **land-based mismanagement of solid waste** that reaches the ocean bed through various land-to-sea pathways. The remaining 20 per cent is contributed by **coastal settlements**.
- Plastic accounts for 90 per cent of all the waste that ends up in the marine ecosystem.
- Of the 460 million tonnes (MT) of global plastic production, nearly 353 MT comes back as plastic waste — 8 MT (2.26 per cent) of which is leaked into the marine ecosystem
- India, with a coastline of more than 7,000 kilometres, has a role to play in controlling this menace.

What are the source of marine litter?

- **Fishing gear:** Abandoned, lost or discarded fishing gear (ALDFG)
- **Tourism:** Most of the waste from beaches comprises multi-layered and low-value plastics, polystyrene, plastic products like cutlery and carry bags and cigarette butts.
- **Polluted discharge:** The other contributors to marine litter include flood waters, discharge of untreated municipal sewage, automobile and industrial waste generated at the coasts and waste from shipbreaking yards.

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SHORT NEWS

Exercise Orion

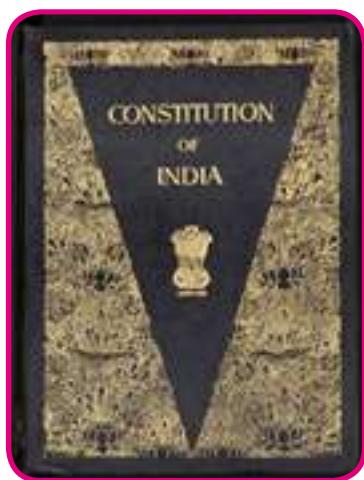
Exercise Orion, a **bilateral military drill** between the **Indian Air Force and the French Air and Space Force (FASF)** started at the Mont-de-Marsan airbase in France.

**About**

- Orion is reportedly the largest ever multinational exercise being carried out by the French defence forces which have involved their **Army, Navy and Air Force** along with their allies the US and the UK.
- The IAF Contingent comprising four **Rafale**, two C-17, two IL-78 aircraft, and 165 air warriors participated in the exercise.
 - This would be the first overseas exercise for the IAF's Rafale aircraft.

Ninth Schedule of the Indian Constitution

Chhattisgarh chief minister has written a letter to Prime Minister Narendra Modi, urging him to include the state's amended provisions to provide 76% reservation for SC, ST OBC and RWS in the ninth schedule of the Constitution for "based on the population" of the state.

**About**

- The Ninth Schedule includes a list of **Central and State laws** which **cannot be challenged in courts**.
 - While the Ninth Schedule provides the law with a "safe harbour" from judicial review, **the protection is not blanket**.
- The Schedule became a part of the **Constitution in 1951**, when the document was amended for the first time.
- It was created by the new **Article 31B**, which along with **31A** was brought in by the government to protect laws related to agrarian reform and for abolishing the Zamindari system.
 - A. 31A** extends protection to 'classes' of laws
 - A. 31B** shields specific laws or enactments.

SIDBI Launches 'Mission 50K-EV4ECO'

Small Industries Development Bank of India (SIDBI) has announced the launch of a pilot scheme called 'Mission 50K-EV4ECO' aimed at strengthening the electric vehicle (EV) ecosystem.

About

- 'Mission 50K-EV4ECO' aims to promote EV adoption and strengthen associated infrastructure in the country.
- The pilot scheme, which is a precursor to the EVOLVE scheme by SIDBI-World Bank.



Indian Policies on EVs

- In 2010, the Ministry of New and Renewable Energy (MNRE), announced a financial incentive for manufacturers for EVs sold in India.
- In 2013, India unveiled the National Electric Mobility Mission Plan (NEMMP) 2020.
- In the Union Budget 2015-16, the 'Faster Adoption and Manufacturing of EVs' (FAME) scheme was announced, with an initial outlay of Rs. 75 crore.
- In 2017, the Transport Ministry highlighted its intent to move to 100 percent electric cars by 2030.
- In February 2019, the Union Cabinet cleared an 10,000-crore programme under the FAME-II scheme.

Scientists identifies Electromagnetic Ion Cyclotron (EMIC) waves



Scientists have identified **Electromagnetic Ion Cyclotron (EMIC) waves**, a form of **plasma** waves in the Indian Antarctic station, Maitri, and studied its characteristics.

About

- The electromagnetic ion cyclotron (EMIC) waves are generally detected in the Earth's magnetosphere and have a small wave normal angle and left-hand polarization in the source region.
- **Formation:** The waves are formed when low-energy ions in the magnetosphere interact with electromagnetic fields, causing the ions to spiral along the magnetic field lines.
- EMIC waves accelerate electrons to very high energies and can cause the particles in the radiation belts to scatter, accelerate, and **precipitate** into the **Earth's atmosphere**, which can lead to changes in the distribution and intensity of the **radiation belts**.

More than 99% of the matter in the visible universe consists of plasma—the fourth state of matter.



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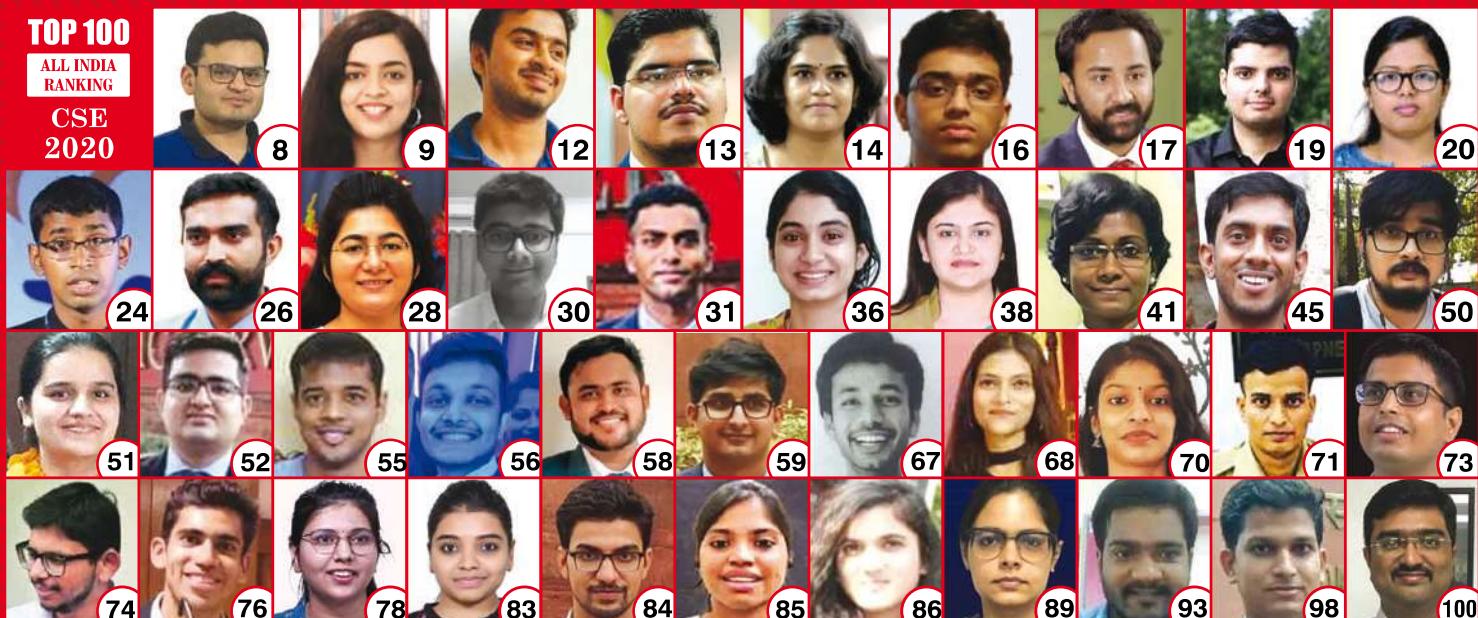


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