

**ECONOMY****Context: Steady growth in a changing world**

Despite growing global risks, the Indian economy seems to have performed fairly well in the first half of this fiscal year. The governor of the RBI stated last week that the second quarter might surprise to the upside following the first quarter's robust growth of 7.8%.

**Indications that the Indian economy is doing better**

- In contrast to the weak manufacturing PMI globally, high-frequency data, such as the Purchasing Managers Index (PMI) for manufacturing and services, continue to show strong expansion.
- The push for public investment is still strong, tax collections are strong, and the financial environment has been favourable.
- India is more resilient because of its well-capitalized banks and robust balance sheets in the private corporate sector.
- The second quarter's challenges from high food inflation and weak exports appear to have been countered by the momentum and strengths within the country.
- Also stable has been consumption.
- Around two-thirds of service sector activity in India is concentrated in urban areas.
- The retail credit growth rate is over 18%, while bank credit growth is still robust at over 15%, both of which support consumer spending.
- The temporary spike in food prices during the July–September quarter caused some instability in the inflationary conditions, but these have since subsided.
- The headline consumer price inflation (CPI) has dropped to below the Reserve Bank of India's comfortable 6-percent threshold thanks to the entry of fresh food supplies into the market and prompt government intervention to curb food price spikes.
- Thanks to decreased commodity prices and less strain on the supply chain, non-food inflation has been relatively mild.
- In September, core inflation, which is determined by deducting fuel and food costs from headline inflation, decreased to 4.5%.
- But the headline CPI is still higher than the 4% target set by the monetary policy committee.
- India's external balance has remained comparatively resilient.
- With over \$580 billion in foreign exchange reserves, the current account deficit is within safe bounds.
- The first half of the fiscal year saw India's strong performance against a backdrop of mixed trends in major economies.
- While some regions of the world, like the US, are seeing a slowdown in growth, Europe and China are not.

**Indian economy's relationship to the world economy**

- The interplay of regional and global developments—which can include shocks, structural shifts, and cyclical factors—will shape the future of the economy.
- The near-term outlook is more significantly impacted by cyclical factors like rising interest rates, slowing global growth, and enduring shocks (the most recent of which is the Middle East conflict).
- In the upcoming quarters, these will put the resilience of the domestic economy to the test.
- Inflation continues to be the main worry on a global scale and poses a threat to the extension of already high interest rates.
- According to S&P Global, this will lead to below-average growth in the US the following year and the year after.
- This year, Europe is weak and will continue to be weak.
- Four decades' worth of data demonstrates that domestic growth cycles have synchronized with advanced countries because of greater integration of trade and financial flows.
- Over the past four years, India's exports to the US and the European Union (EU) have increased while those to the Asia Pacific region have decreased.
- Increased trade exposure to the US and EU implies that a cyclical slowdown there will impact the local economy.
- The two geopolitical conflicts that are currently raging, one in the Middle East and the other between Russia and Ukraine, have the potential to escalate crude oil prices and put pressure on the economy, public finances, growth, and external accounts.
- In addition, growth is anticipated to be moderate in the upcoming quarters due to domestic developments like the detrimental effects of unpredictable weather on agriculture and the delayed effects of interest rate hikes by the RBI on interest rate-sensitive sectors.
- PMIs for manufacturing and services, although still robust expansion zone, have come down in October.

**India's potential for medium- to long-term growth**

- Unprecedented structural developments, including changing globalization, technological disruptions, climate action, and demographic shifts, will impact India's medium- to long-term growth narrative.
- The potential for global growth is being reduced by shifting globalization, which includes tariff wars and supply-chain diversification, as well as an aging population.
- A recent World Bank report projects that between now and 2030, global growth will drop to a three-decade low of 2.2% annually, from 3.5% in the previous decade and 2.6% between 2011 and 21.
- Although India's economic cycles are now in sync with those of developed nations, the country's long-term trend rate of growth continues to take a different course.
- Due to opening up and economic reform, India's growth has increased while that of advanced countries has been declining since the early 1990s.
- In addition to riding the tailwind from diversifying global supply chains, India can maintain and possibly improve its growth prospects as growth potential across advanced countries slows by developing both digital and physical infrastructure and implementing growth-enhancing reforms to improve ease of doing business.

**Challenges to Indian economy**

- India is attempting to use manufacturing and infrastructure, two industries with high carbon emissions, as its main growth drivers. Action related to climate change will therefore present a special challenge.
- Making growth labour-intensive while enhancing women's participation is the second challenge.

**Conclusion:**

India's growth rate can be maintained at roughly 6.7% annually through the end of this decade, which is marginally higher than the 6.6% annual growth rate recorded in the decade prior to the pandemic. As a result, India's economy will grow to \$6.7 trillion and reach middle-income levels by 2030–31.

**SCIENCE AND TECHNOLOGY****Context: Artificial Intelligence, Developments and their Applications and Effects in Everyday Life, Awareness in the fields of IT, Disadvantages of AI, Applications of AI****Why in News?**

- The Artificial Intelligence (AI) Safety Summit 2023, which took place at Bletchley Park in England, represents a paradigm shift in how the world is approaching the problems that emerging AI technologies present.
- At this inaugural AI Safety Summit, 28 major nations—including the US, China, India, and the EU—signed the Bletchley Park Declaration in an effort to address these issues.
- This historic proclamation aims to establish a shared understanding and unified strategy for addressing the possible advantages and disadvantages of frontier AI, or advanced artificial intelligence systems.

**What are the main features of the 2023 Artificial Intelligence Safety Summit?****Bletchley Park Declaration:**

- The Bletchley Park Declaration represents a high-level political consensus and commitment among the major AI players in the world and is the first global agreement on addressing frontier AI risks.
- It recognizes that artificial intelligence (AI) has the potential to improve human well-being, but it also recognizes the risks that AI, particularly frontier AI, poses. These risks include the potential for serious harm, either intentional or unintentional, especially in areas like disinformation, cyber security, and biotechnology.
- Because AI-related risks are inherently global, it highlights the necessity of international cooperation to address them. Collaboration amongst all actors, including businesses, academia, and civil society, is called for.
- In addition, a regular AI Safety Summit is being announced in the declaration, offering a forum for discussion and cooperation on cutting edge AI safety.
  - **Within the next year, France will host the next summit, and in the following six months, South Korea will co-host a small virtual AI summit.**

**India's Position at the Conference:**

- India is actively developing regulations based on a risk-based, user-harm approach, having previously taken the position of not considering regulation of AI.
- India demonstrated its commitment to responsible AI use by calling for a global framework for the expansion of "ethical" AI tools.
- India has expressed interest in setting up national and international regulatory agencies to guarantee the ethical application of artificial intelligence.
- Although it has not yet been put into effect, the Digital India Act, 2023, is anticipated to bring issue-specific regulations for online intermediaries, including AI-based platforms.

### Key Facts about Bletchley Park

- Bletchley Park is located approximately 80 km north of London in Buckinghamshire, England.
- It was the primary location of the British Government Code and Cypher School (GC&CS) during World War II.
- During the war, Bletchley Park worked on interpreting messages from the enemy.
- The German Enigma code, which was thought to be impenetrable, was cracked thanks in large part to the Turing Bombe, which was created at Bletchley Park.
- This electro-mechanical apparatus greatly sped up the process of cracking codes, which helped the Allies win the Second World War.
- The Colossus machine, which is frequently cited as the first programmable electronic digital computer in history, was also created at Bletchley Park.
- Artificial intelligence and modern computing are still influenced by the ideas and inventions created at Bletchley Park.
- Today, Bletchley Park serves as a museum and historic site, drawing tourists drawn to its contributions and history during World War II.

### Conclusion:

Artificial intelligence leads to transformative applications within a series of industrial, intellectual and social applications. The main outcome of the AI Safety Summit Were the Signing of a Declaration by 28 Countries to Continue Meeting and Discussing AI Risks In Future, the launch of the AI safety institute and a general agreement that more research is needed to make AI safe in the future

## PRELIM FACTS

### 1.Directions Regulating Firecrackers Apply To All States in Country: Supreme Court

- Supreme Court clarified that its 2021 directions against use of barium and banned chemicals in firecrackers are now applicable across country to curb air and noise pollution during festive periods.
  - In 2021, SC stated that there is no total ban on use of firecrackers, and that only those firecrackers were banned that contained barium salts.
- Green crackers are permissible following the directions issued by Supreme Court in 2018.
  - They cause 30% less air pollution and don't contain hazardous elements like barium nitrate. Toxic metals in traditional crackers are replaced with less hazardous compounds.
  - Council of Scientific and Industrial Research developed green crackers namely
    - SWAS (safe water releaser) suppresses dust released by releasing water vapour in air.
    - STAR (safe thermite cracker) does not comprise potassium nitrate and sulphur, emits reduced particulate matter disposal and reduced sound intensity.
    - SAFAL has minimum usage of aluminium, and used magnesium instead
- Initiatives taken to control Air and Noise Pollution National Clean Air Programme:
  - To achieve 40% reduction in concentrations of PM10 by 2025-26.
  - Graded Response Action Plan for Delhi.
  - Noise Pollution (Regulation and Control) Rules, 2000 reduces noise levels at night by restricting firecrackers, loud speakers etc

### 2.Timed out in Cricket

- Recently, a batter had to walk back before facing a single ball after he was timed out, for the first time in international cricket across all formats.
- As per the International Cricket Council's playing conditions for World Cups, the new batter must be ready to face the bowler within two minutes of the fall of the previous wicket.
- As per protocol, the TV umpire starts the clock immediately at the fall of the previous wicket

### 3. Global Tuberculosis (TB) Report, 2023

**Context:** World Health Organisation released Global Tuberculosis (TB) Report, 2023

#### Key findings: Global

- Reported global number of people newly diagnosed with TB was 7.5 million in 2022.
- TB remained the world's second leading cause of death in 2022 after COVID-19.
- Net reduction of TB incidence from 2015- 2022 was 8.7% far from WHO End TB Strategy milestone of 50% reduction by 2025.
- Only about 2 in 5 people with drug resistant TB accessed treatment in 2022

#### India's findings

- India, Indonesia and Philippines collectively account for nearly 60% of reduction in number of people newly diagnosed with TB in 2020- 2021.

- India has 27% of world's TB cases.

TB is caused by **bacillus Mycobacterium tuberculosis** which most often affects lungs (pulmonary TB).

- Most common medications to treat TB include isoniazid, rifampin, ethambutol, pyrazinamide etc.
- Currently, Bacille Calmette-Guerin is only licensed vaccine available for TB prevention.
- Spreads from person to person through air.
- TB Risk factors: Diabetes, HIV infection, Undernutrition, tobacco use

**Steps taken to prevent Tuberculosis**

- National Strategic Plan for Tuberculosis Elimination 2017-2025.
- TB Mukht Panchayat Abhiyan Initiative.
- Nikshay Poshan Yojana for nutritional support to TB patients.

**4. Scientists have discovered the oldest black hole dating back to 470 million years after the Big Bang**

- This black hole is about 13.2 billion years old, as the universe itself is 13.7 billion years old
- NASA's James Webb Space Telescope and Chandra X-Ray Observatory were used to make observations with the gravitational lensing technique in the galaxy named UHZ1.
  - Gravitational Lensing occurs when massive objects distort and magnify light from objects behind them, acting as cosmic telescopes and making distant galaxies appear brighter.
- About Black hole in galaxy UHZ1
  - It is a supermassive black hole almost ten times bigger than black hole (Sagittarius A\*) in our galaxy.
  - It weighs anywhere from 10% to 100% of the mass of all the stars in its galaxy.
  - It is considered a quasar since it's actively growing and the gas is very bright
- Black hole is a place in space where gravity pulls so much that even light cannot get out.
  - They are formed when massive stars die or there is a direct collapse of gases

**Significance of studying black hole**

- To understand how matter behaves in extremely strong gravitational fields
- To understand how fast the universe is expanding and how it has evolved

**Chandra X-Ray Observatory:**

It is a telescope deployed in 1999 and designed to observe X-rays from high-energy regions of the universe, such as the remnants of exploded stars.

**James Webb Telescope:**

Launched in 2021 in the second Lagrange point or L2 (1 million miles away from the Earth).

It is the most powerful astronomical observatory ever sent into space, it sees the universe in the infrared.

**5. Solar flares**

**Context:**

Aditya L1's payload named High Energy L1 Orbiting X-ray Spectrometer (HELIOS) has captured first glimpse of solar flares.

- Solar flare is an intense burst of radiation coming from release of magnetic energy from Sun.
  - These are solar system's largest explosive events.
  - They tend to originate from regions of solar surface that contain sunspots — darker, cooler portions of solar surface where magnetic fields are particularly strong.
  - They can disturb the Earth's ionosphere, which in turn disturbs radio communications.
  - They produce enhanced emission in wavelengths across electromagnetic spectrum - radio, optical, UV, soft X-rays, hard X-rays and gamma-rays.

**ANSWER WRITING**

**Q. What are the key features and significant provisions of the Indian Constitution which encourage unity in diversity in Indian society? Discuss**

**Introduction:**

India is a nation renowned for its diversity, containing a multitude of languages, a rich cultural legacy, and diverse religious views. The Indian Constitution, which went into force on January 26, 1950, is essential to preserving the nation's diversity and coherence. The constitution seeks to uphold justice, equality, and fraternity for all of its people, regardless of their gender, caste, creed, or religion. One remarkable document that captures both India's diversity and unity is the Constitution.

**It aims to promote harmony among diversity in Indian society through a number of features and provisions.**

**Among them are:**

➤ **One Constitution:**

- All states and union territories are subject to the same Constitution, which governs the entire nation.

- This guarantees every citizen a uniform set of rights, obligations, and laws. Article 1, which describes India as a union of states and calls itself Bharat, is an illustration of this.
- **Fundamental Rights:**
  - All citizens are entitled to certain fundamental rights under the Constitution, including equality, freedom of religion, expression, and so forth.
  - These rights foster harmony and tolerance between various societal segments while defending the rights and dignity of individuals and groups.
  - Article 14, which guarantees equality before the law and equal protection under the law, is one example of this.
  - Article 15 also forbids discrimination based on caste, sex, religion, race, or place of birth. It guarantees that every citizen is treated equally in the eyes of the law, encouraging harmony between various groups.
- **Directive Principles of State Policy (DPSP):**
  - The constitution also establishes standards that the state must adhere to in order to protect the environment, promote economic welfare, and ensure social justice.
  - These values and aspirations are reflected in these principles, which also promote national integration and a sense of the common good.
  - Article 39A, which mandates the state to offer free legal aid in order to guarantee justice for all, is one example of this.
- **Federalism:**
  - The federal system of government established by the Constitution divides authority between the federal government and the states.
  - This permits diversity and regional autonomy inside a single framework. The Constitution also establishes dispute resolution procedures between the various branches of government, including finance commissions and interstate councils.
  - Article 246 is one example of this, as it enumerates the topics on which laws can be made at each level of government
- **Devolution of Power:**
  - The Indian Constitution establishes municipalities and panchayats, among other local self-governing entities, in recognition of the significance of local governance.
  - The inclusion of individuals from a variety of backgrounds in local government and decision-making has been aided by this provision.
- **Secularism:**
  - According to the constitution, India is a secular state in which the government does not favour any one religion over another or treat them differently.
  - The state upholds the freedom of all religions and treats them with equal respect.
  - The constitution encourages religious harmony by permitting distinct personal laws for various communities.
  - Article 25, which guarantees freedom of conscience as well as the freedom to practice, profess, and spread religion, is one example of this.
- **Linguistic Diversity:**
  - The Constitution allows for the recognition of other languages by states or regions, but it names 22 languages as the official languages of India.
  - Linguistic minorities are also allowed to receive an education in their mother tongue under the Constitution.
  - Article 350A, which permits linguistic minorities to receive an education in their mother tongue, is one instance of this.
- **Cultural and Educational Rights:**
  - The significance of protecting cultural and educational rights is acknowledged by the Constitution.
  - The Constitution's Articles 29 and 30 guarantee the safeguarding of minorities' interests in India.
  - It guarantees the right of every community to preserve its script, language, and culture.
  - The Constitution also calls for the creation of educational institutions to advance minority interests.
  - Furthermore, special provisions for the development of tribal areas and North-eastern states are outlined in Article 371 of the constitution.
  - This clause protects these regions' cultural identities while allowing for development that takes into account their distinctive cultural and linguistic diversity.

### Conclusion

The diversity and unity of India are reflected in the singular and remarkable Indian Constitution. Its guarantees of fundamental rights, state policy directives, federalism, local government, secularism, linguistic diversity, and rights to

culture and education all work to bring Indian society together despite its diversity. India has become a democratic, secular, and diverse country with the support of the Constitution, which has been essential in preserving the peace and unity of the nation.

**MCQs**

- What is Environmental DNA (eDNA)?
  - eDNA refers to the electronic documentation of environmental samples.
  - eDNA is the extraction of DNA from historical artifacts.
  - eDNA is the genetic material obtained directly from environmental samples like water, soil, or air.**
  - eDNA stands for Electronic Data Networking, a system used for tracking endangered species.
- 'Composite Water Management Index' (CWMI) report is published by the
  - Central Ground Water Board
  - Central Water Commission
  - Central Pollution Control Board
  - NTI Aayog**
- What is the Golden Mile?
  - A historic trail through the Amazon rainforest in South America.
  - A famous stretch of beaches along the French Riviera.
  - An iconic road in Las Vegas, known for its concentration of luxury hotels and resorts.
  - A nickname for a historic mining district in Western Australia.**
- What is blue carbon?
  - Carbon captured by oceans and coastal ecosystems**
  - Carbon sequestered in forest biomass and agricultural soils
  - Carbon contained in petroleum and natural gas
  - Carbon present in atmosphere
- Consider the following pairs [Wildlife Sanctuary: State]:
  - Gundla Brahmeswaram Wildlife Sanctuary: Karnataka
  - Debrigarh Wildlife Sanctuary: Odisha
  - Mhadei Wildlife Sanctuary: Goa

How many of the above pairs are correctly matched?

  - Only one
  - Only two**
  - All three
  - None
- What is an Advocate-on-Record (AOR)?
  - An attorney who specializes in record-keeping for legal cases.
  - A legal professional qualified to represent clients in court proceedings in India.**
  - A legal expert responsible for archiving court documents.
  - A law enforcement officer responsible for recording witness statements.
- Which of the following is/are NOT criteria for being qualified as a 'biodiversity hotspot'?
  - Each one must be irreplaceable
  - It must have 30% or less of its original natural vegetation

Select the correct answer using codes given below

  - 1 Only
  - 2 Only
  - Both 1 and 2
  - Neither 1 nor 2**
- With reference to 'Geoglyphs' consider the following statements
  - Geoglyphs typically consist of stones or soil and are essentially natural depictions.
  - Nazca Lines is an example of Geoglyphs
  - They are typically formed by clastic rocks or stone fragments, gravel, or earth.

How many statement(s) given above are correct

  - Only one
  - Only two**
  - All three
  - None
- 'Euclid Space Telescope' which was recently in news is a mission from
  - National Aeronautics and Space Administration (NASA)
  - European Space Agency (ESA)**
  - Canadian Space Agency
  - Japan Aerospace Exploration Agency (JAXA)
- Consider the following statements about 'Border Adjustment Tax (BAT)'
  - BAT is a duty that is proposed to be imposed on imported goods in addition to the customs levy.
  - It imposes a charge on goods or services in accordance with the origin principle of taxation.
  - BAT aims to ensure a level playing field for both foreign and domestic companies operating within a tax jurisdiction.

Select the correct statement(s)

  - 1 and 2 only
  - 2 and 3 only
  - 1 and 3 only**
  - All the above