

# DAILY CURRENT AFFAIRS

By



SOURCES



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## **Important News Articles**

1. Madras HC dismisses PIL petition against Kudankulam project - The Hindu
2. Toilet use declining in rural India since 2018-19: WB paper - The Hindu
3. World Bank keeps India FY24 growth forecast at 6.3% on waning demand - The Hindu/ Indian economy likely to grow at 6.3% in FY24: World Bank - Indian Express
4. Nanoparticles from vehicle fumes can cause acute illness': Study looks at 2021 Delhi data over two periods
5. Trio wins Nobel Prize in physics for finding a way to 'see' electrons - The Hindu
6. Manufacturing PMI slips to 5-mo. low - The Hindu
7. We will remain deployed in eastern Ladakh until full disengagement: IAF chief - The Hindu
8. India's corporate credit rating upgrades moderate in H1 FY24 - Indian Express

## **Editorials, Gists and Explainers**

1. The trouble with a Nobel for mRNA COVID vaccines - The Hindu
2. Circular migration: looking at both sides of the debate - The Hindu

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2. Panchnama
3. AUKUS
4. Controller General of Accounts (CGA)
5. Nagorno-Karabakh Region

## Important News Articles

### GS II

#### 1. Madras HC dismisses PIL petition against Kudankulam project - The Hindu

**Relevance:** Distribution of key natural resources across the world (including South Asia and the Indian sub-continent); factors responsible for the location of primary, secondary, and tertiary sector industries in various parts of the world (including India).

**News:**

- The **Madras High Court has dismissed a public interest litigation (PIL)** petition filed in 2017 against the Kudankulam Nuclear Power Project (KKNPP)
- The **PIL was filed against the first pour of concrete for units 3 and 4 of the Project without complying with norms** on restricting the population growth in the sterilized zone — the area within a 5-km radius of the plant.

**Prelims Takeaway**

- Nuclear energy
- The Kudankulam power plant

**The Kudankulam power plant**

- It is located in **the coastal Tamil Nadu.**
- It is a **Civilian Nuclear Power Plant, built by India in joint-collaboration with Russia.**
- There are a total of **7 operating nuclear power plants in India**, and all of these facilities are a part of India's Critical Information Infrastructure.

**Nuclear energy**

- **It comes from splitting atoms in a reactor** to heat water into steam, turn a turbine and generate electricity.
- Inside **nuclear power plants, nuclear reactors** and their equipment contain and control the chain reactions, most commonly fueled by Uranium-235, to produce heat through fission.

**Significance for India**

- With the availability of Thorium, **India has the potential to be the first nation to realise the dream of a fossil fuel-free nation.**
- Nuclear energy will **also relieve the nation of about \$100 billion** annually which we spend on importing petroleum and coal.
- Nuclear power **provides a relatively clean, high-density source of reliable energy with an international presence.**

#### 2. Toilet use declining in rural India since 2018-19: WB paper - The Hindu

**Relevance:** Government policies and interventions for development in various sectors and issues arising out of their design and implementation.

**News:**

- A departmental working paper by **the World Bank on the progress of the Swachh Bharat Mission - Gramin (SBM-G)** observed the trend of regular toilet use declining in rural India from 2018-19 onwards,
- **The largest drop being seen among Scheduled Caste and Scheduled Tribe** socio-economic groups.

**Prelims Takeaway**

- Swachh Bharat Abhiyan
- National Family Health Surveys

**Key findings of the report**

- The paper, by researchers at the World Bank and a faculty of Economics at Yale University, **reconciles varied data points on toilet access and usage from:**
  - the National Family Health Surveys (NFHS)
  - the SBM-G's own information system.
- The **NARSS was conducted across rural India from 2017-18 to 2019-20** by the Ministry of Drinking Water and Sanitation with World Bank support.
- As the programme started, it led to a substantial increase in access to own or shared improved toilets in rural India - **from 38% in 2012 to 90% in 2019-20**

- the States where there has been a sustained decline in regular use of toilets since 2018 were **Uttar Pradesh, Gujarat, Chhattisgarh, Telangana, Karnataka, and Himachal Pradesh,**
- Regular toilet use has increased in Tamil Nadu, Karnataka, Andhra Pradesh, Telangana and Gujarat
- It concluded that **most low-income States were among the best performers** in terms of their overall increase in regular use of toilets
- the **performance of richer States was mixed.**

#### Decline amongst SCs, STs

- While **regular use of toilets declined for all groups, the decline is the largest for the SCs and the STs.**
- But the regular **use of any toilet for SC and ST people saw a jump of 51 and 58 percentage points** respectively between 2015-16 and 2018-19

## GS III

### 3. World Bank keeps India FY24 growth forecast at 6.3% on waning demand - The Hindu/ Indian economy likely to grow at 6.3% in FY24: World Bank - Indian Express

**Relevance:** Indian Economy and issues relating to planning, mobilization, of resources, growth, development and employment

#### News:

- Recently, **the World Bank retained India's growth forecast at 6.3%** for the year 2023-24 saying the **expected moderation was due to challenging external conditions and waning pent-up demand.**
- According to the **RBI's latest forecast, the economy would grow at 6.5%** in 2023-24.

#### Prelims Takeaway

- GDP
- World Bank

#### GDP

- The **GDP measures the monetary measure of all "final" goods and services**— those that are bought by the final user— produced in a country in a given period.

#### Key Engines of GDP Growth

- All the **money Indians spent for their private consumption** (that is, Private Final Consumption Expenditure or PFCE)
- All the **money the government spent on its current consumption**, such as salaries [Government Final Consumption Expenditure or GFCE]
- All the **money spent towards investments to boost the productive** capacity of the economy. This includes business firms investing in factories or the governments building roads and bridges [Gross Fixed Capital Expenditure]
- The **net effect of exports (what foreigners spent on our goods) and imports** (what Indians spent on foreign goods) [Net Exports or NX].

#### How GDP can be calculated

- $GDP = \text{private consumption} + \text{gross investment} + \text{government investment} + \text{government spending} + (\text{exports} - \text{imports})$

### 4. Nanoparticles from vehicle fumes can cause acute illness': Study looks at 2021 Delhi data over two periods

**Relevance:** Conservation, environmental pollution and degradation, environmental impact assessment.

#### News:

- **Nanoparticles** in Delhi's air can potentially be **transported from the respiratory system to other parts of the human body**, creating more chronic and acute illnesses, according to a study.
- A major chunk of **it comes from vehicular emissions,**

#### Prelims Takeaway

- Nanoparticles
- Black carbon

**Key points**

- These “**very small particles**” may come from natural sources or from human activities.
- In urban road environments, **nanoparticles come mainly from the combustion process in automobiles**, the study noted,
- **Meteorology and other factors** can also influence concentration of these particles
- With rise in **relative humidity, coagulation of these particles** results in their concentration becoming high
- High concentrations of these pollutants are found **during peak morning and evening hours due to vehicular emissions**
- **Higher wind speed** can result in dispersion of these particles.

**Nanoparticles**

- Nanoparticles (NPs) are **tiny particles between 1 and 100nm**.
- Due to their ultrafine size, **they can be suspended in the atmosphere for a long time and can travel longer distances**.
- They **enter the environment from various sources**, including natural, incidental and manufactured processes.
- High concentrations of these droplets **increase the proportion of solar radiation reflected back to space**, causing a cooling effect on climate.
- Long exposures to high concentrations of nanoparticles **cause lung problems and cardiovascular disease**.
- **Infant mortality, neonatal complications and birth defects** are likely to increase with increasing concentrations of matter smaller than 10  $\mu\text{m}$ .

## 5. Trio wins Nobel Prize in physics for finding a way to ‘see’ electrons - The Hindu

**Relevance:** Science and Technology- developments and their applications and effects in everyday life.

**News:**

- Recently, the **Nobel Prize for Physics 2023** was awarded to **France’s Pierre Agostini, Hungarian-Austrian Ferenc Krausz and French-Swedish Anne L’Huillier**.
- They were awarded for **research using ultra-quick light flashes that enable the study of electrons** inside atoms and molecules.

**Prelims Takeaway**

- Nobel Prize Physics 2023
- Atoms and Molecules
- Nobel Prize

**The Work**

- The scientists have demonstrated a way to **create extremely short pulses of light**.
- This can be **used to measure the rapid processes in which electrons move or change energy**.
- **An atom is composed of a nucleus of protons and neutrons; and electrons that travel around this nucleus**.
- Electrons move so fast that it is **impossible to observe them in real time**.
- But now, we can **observe and study the movement of electrons**, by producing **pulses of light that last only attoseconds** ( $1 \times 10^{-18}$  of a second).
- This can be compared to a **high-shutter-speed camera**.
  - If a normal camera is used to capture a moving train, the image will be blurred.

**Significance**

- **Attosecond physics** gives us the opportunity to **understand mechanisms that are governed by electrons**.
- It has potential applications in **both electronics and medical diagnostics**.
- One possible application is to **study molecular-level changes in blood to identify diseases**.
- A better understanding of how electrons move and transmit energy can also **help in creating more efficient electronic gadgets**.

## 6. Manufacturing PMI slips to 5-mo. low - The Hindu

**Relevance:** Indian Economy and issues relating to planning, mobilisation, of resources, growth, development and employment.

**News:**

- As per the seasonally adjusted **S&P Global India Manufacturing Purchasing Managers' Index (PMI)**, India's manufacturing sector activity moderated to a five-month low in September.
- While **inflation in input costs eased to the lowest in over three years, firms raised output charges at a sharper pace** which could hurt sales prospects.

### Prelims Takeaway

- Purchasing Managers Index
- Sovereign Credit Ratings
- S & P Global

## Manufacturing moderates

**Purchasing Managers' Index shows factories' output grew at slowest pace in five months, with PMI easing to 57.5 from 58.6**



■ Firms cite higher labour costs, business confidence and buoyant demand for September's output price increases

■ Companies note new business gains from clients in Asia, Europe, North America and West Asia

■ Optimism spurs a pick-up in hiring growth at a 'historically strong' pace

### Purchasing Managers Index

- It is a **survey-based measure** that asks the respondents about **changes in their perception** about key business variables as compared with the previous month.
- **Purpose:** To provide information about current and future business conditions to company decision makers, analysts, and investors.
- It is **calculated separately** for the manufacturing and services sectors and then a **composite index** is also constructed.
- The PMI is a number from **0 to 100**.
  - A print above 50 means expansion, while a score below that denotes contraction.
  - A reading at 50 indicates no change.
- It is considered a **good leading indicator** of economic activity.
  - It is usually released at the start of every month.
- PMI is compiled by **IHS Markit** for more than 40 economies worldwide.

## 7. We will remain deployed in eastern Ladakh until full disengagement: IAF chief - The Hindu

**Relevance:** Security challenges and their management in border areas – linkages of organized crime with terrorism.

**News:**

- The Indian Air Force (IAF) is **looking at procuring 97 additional indigenous Light Combat Aircraft (LCA)-Mk1A** fighter jets at an estimated cost of ₹1.15 lakh crore,
- On the **situation along the Line of Actual Control (LAC) with China**, Air Chief Marshal said the operational plans of the IAF were dynamic and can change as per the developing situation.

### Prelims Takeaway

- Line of Actual Control
- Map Based question

### Line of Actual Control (LAC)

- The LAC is **the demarcation that separates Indian-controlled territory from Chinese-controlled territory.**
- It is divided into **three sectors:**
  - the eastern sector which spans Arunachal Pradesh and Sikkim
  - the middle sector in Uttarakhand and Himachal Pradesh
  - the western sector in Ladakh.
- India considers the **LAC to be 3,488 km long, while the Chinese consider it to be only around 2,000 km.**
- India's **claim line is the line seen in the official boundary marked on the maps as released by the Survey of India, including both Aksai Chin and Gilgit-Baltistan.**
- This means **LAC is not the claim line for India.**
- In China's case, **LAC is the claim line except in the eastern sector, where it claims the entire Arunachal Pradesh as South Tibet.**



## 8. India's corporate credit rating upgrades moderate in H1 FY24 - Indian Express

**Relevance:** Indian Economy and issues relating to planning, mobilization, of resources, growth, development and employment.

### News:

- According to rating agencies, **Corporate India's credit profile continued to remain strong** in April-September 2023.
- However, the **number of rating upgrades declined** during the first six months.

### Prelims Takeaway

- Credit Rating
- Credit Rating Agencies

### Rating Upgrades

- The **number of corporates** that witnessed **credit rating upgrades** in H1 of FY24 **outnumbered those who faced downgrades.**
- The upgrades were **driven by an expected expansion in cash flows** for sectors linked to **domestic demand** and for those **benefiting from high government spending.**
- **These sectors**, such as infrastructure, services and consumables, **kept the overall upgrade rate elevated.**

### Credit Rating

- It is an **assessment of the creditworthiness of a borrower** in general terms or with respect to a particular debt or financial obligation.
- It can be **assigned to any entity that seeks to borrow money** like an individual, corporation, state or provincial authority, or sovereign government.

### Credit Rating Agency

- Credit Rating Agency is a **company that assigns credit ratings.**

- It **rates a debtor's ability to pay back debt** by making timely principal and interest payments and the **likelihood of default**.
- There are **six credit rating agencies registered under SEBI** namely, **CRISIL, ICRA, CARE, SMERA, Fitch India and Brickwork Ratings**.
- **Evaluating the creditworthiness** of an instrument comprises both **qualitative and quantitative assessments**.

#### Types of Credit Rating

- All credit agency businesses **use a variety of terminologies to generate credit scores**.
- Therefore, **ratings are divided into two categories**
  - **Investment Grade**
    - Indicate a **safe investment** with a high probability that the issuer will adhere to the terms of the repayment.
    - These **investments cost less** than investments of a speculative grade.
  - **Speculative Grade**
    - Rated as speculative because of their **high risk**.
    - Therefore, they have **higher interest rates**.

#### Significance

- **For The Money Lenders**
  - With credit rating, lenders **get an idea about the creditworthiness** of the borrower **and the risk factor attached** with them.
  - By evaluating this, they can **make a better investment decision**.
  - High credit rating means an **assurance about the safety of the money** and that **it will be paid back with interest on time**.
- **For Borrowers**
  - With a high credit rating, **banks will approve loan applications of borrowers easily**.
  - Credit ratings will **enable**
    - independent benchmarks for pricing debt
    - a culture of financial discipline
    - help allocate capital efficiently by pricing risk appropriately
    - support financial innovation.



## Editorials, Gists and Explainers

### 1. The trouble with a Nobel for mRNA COVID vaccines - The Hindu

**Relevance:** Science and Technology- developments and their applications and effects in everyday life.

**Context:**

- The **2023 Nobel Prize for Physiology or Medicine** was recently awarded to **Katalin Kariko and Drew Weissman**.
- They won the award for **developing the mRNA vaccine technology** that became the **foundation for history's fastest vaccine development programme during the COVID19 pandemic**.

#### mRNA Vaccines

- Such vaccines **make use of the messenger RNA molecules** that tell the body's cells what proteins to build.
- Here, the **mRNA is coded to tell the cells to recreate the spike protein of the coronavirus SARS-CoV-2**, which causes Covid-19.
- A **coronavirus vaccine based on mRNA**, once injected into the body, will **instruct the body's cells to create copies of the spike protein**.
- In turn, this is expected to **prompt the immune cells to create antibodies to fight it**.
- These antibodies will **remain in the blood and fight the real virus** if and when it infects the human body.

#### Nobel Prize 2023

- It acknowledges work that has **created benefits "for all mankind"**.
- However, if we had to be **stricter about holding scientific accomplishments** up to this standard, the **subset of mRNA vaccines** used during the COVID-19 pandemic **may not meet it**.
- Yet, they **deserved to win** the prize for their scientific accomplishments.
- Instead, their triumph tells us **what "for all mankind" should really mean**.

#### At the expense of public funds

- A significant portion of the foundational research behind the development of new drugs and vaccines is conducted using government funding.
  - It involves the identification of potential biomolecular targets within the body that could be targeted by a drug to treat a specific disease.
  - This is followed by the search for suitable chemical candidates.
- The estimated cost and time for this phase are \$1 billion to \$2.5 billion and several decades respectively.
- Companies subsequently commoditise and commercialise these entities, raking in millions in profits.
  - This is typically at the expense of the same people whose taxes funded the fundamental research.
- The current drug and vaccine development model encourages innovation and the resulting competition helps reduce prices.
- However, one cannot deny the 'double-spend' it imposes on consumers including governments.
- Additionally, it also encourages a profit-driven mindset among the companies involved in the development and production of these products.

#### Moderna and Pfizer Vaccines

- After Moderna and Pfizer began producing their mRNA COVID-19 vaccines, they were mired in North American and European countries' determination to make sure they had ample for themselves.
- Their use in other countries (including India) was also complicated by protracted negotiations over pricing and liability.

#### On COVAX

- COVAX is one of three pillars of the Access to COVID-19 Tools (ACT) Accelerator.
- It was launched in April 2020 by the World Health Organization (WHO), the European Commission and France in response to the Covid-19 pandemic.
- It is an effort to ensure that people in all corners of the world will get access to Covid-19 vaccines once they are available, regardless of their wealth.
- However, this programme fell far short of its targets.
- India, Russia, and China exported billions of doses of their vaccines, but their efforts were beset by concerns.
- It included concerns like overestimated manufacturing capacity (in India's case) and quality (in Russia's and China's case).
- There were reports of several countries in Africa having to throw away lakhs of vaccine doses because they had been exported too close to their expiry dates.

#### On Corbevax

- A counterexample to the path that Dr. Kariko followed is Corbevax.
- Baylor College of Medicine, Houston, and the Texas Children's Hospital Centre for Vaccine Development developed this protein subunit vaccine.
- They licensed it to India's Biological E for manufacturing but did not patent it.
- It helped in the development and distribution of a low cost COVID19 vaccine to people of the world without patent limitation.

#### Conclusion

- We cannot blame our scientists for **trying to profit from their work**.
- The **mRNA vaccine could have benefited everyone** during the pandemic, **but it did not**.
- So, history should remember **what actually happened during the pandemic** and what the 2023 Medicine Nobel claims happened differently.

## 2. Circular migration: looking at both sides of the debate - The Hindu

**Relevance:** Social

**Context:**

- Circular migration is a **repetitive form of migration** wherein people move to another place and back according to the availability of employment.

Circular Migration	Policy Hazard
<ul style="list-style-type: none"> <li>• Circular migration became quite popular in the 60s and 70s with the advent of globalisation and development.</li> <li>• It is a phenomenon mostly among low-income groups who migrate to avail of seasonally available jobs in another country, city, place etc.</li> <li>• Factors that have aided the advent of circular migration               <ul style="list-style-type: none"> <li>◦ Increased access to modern forms of transport and communication</li> <li>◦ Social networks</li> <li>◦ Growth of multinational corporations</li> </ul> </li> <li>• According to Philippe Fargues, migration can be defined as circular if it meets the following criterias               <ul style="list-style-type: none"> <li>◦ There is a temporary residence in the destination location</li> <li>◦ There is the possibility of multiple entries into the destination country</li> <li>◦ There is freedom of movement between the country of origin and the country of destination during the period of residence.</li> <li>◦ There is a legal right to stay in the destination country,</li> <li>◦ There is protection of migrants' rights</li> <li>◦ There is a healthy demand for temporary labour in the destination country</li> </ul> </li> <li>• One is called a circular migrant if he has completed at least 'two loops' between two countries.</li> </ul>	<ul style="list-style-type: none"> <li>• The movement of citizens from the Global South to the West in search of more employment opportunities or a better standard of living creates               <ul style="list-style-type: none"> <li>◦ Brain drain for their origin countries</li> <li>◦ Competition for the citizens of the destination countries</li> </ul> </li> <li>• Similarly, the flow of people moving from rural areas to more urban areas of the same country, results in the breakdown of infrastructure and agrarian stagnation.</li> <li>• Therefore, migration of any kind has become a policy hazard.</li> </ul> <p style="text-align: center;"><b>Significance</b></p> <ul style="list-style-type: none"> <li>• With circular migration, the needs of development and individual economic advancement can be balanced out.</li> </ul> <p><b>1. For the country of origin</b></p> <ul style="list-style-type: none"> <li>◦ Migration, especially international migration, is beneficial due to the flow of remittances that boosts and aids the domestic economy.</li> <li>◦ The flow of foreign capital enhances the economy, ensures more infrastructure, more jobs and by association, a better standard of living.</li> <li>◦ However, the most talented people of one country will use their intellect and innovation for the advancement of another country.</li> </ul> <p><b>2. For the host countries</b></p> <ul style="list-style-type: none"> <li>◦ A lesser population and a higher access to education has resulted in a large dearth of low-income low skill jobs which migrants have been able to fill.</li> <li>◦ However, the influx of migrants has caused a wide range of anxieties and cultural conflicts in the host populations.</li> <li>◦ Circular migration aims to quell all these fears.</li> <li>◦ The negative effects of brain drain will reduce and a sort of brain circulation will be encouraged.</li> </ul>

Circular migration within India	Issues with circular migration within India
<ul style="list-style-type: none"> <li>• In India, internal migration, which is migration within a particular country or State, has almost always been circular.</li> <li>• With the advent of jobs in the manufacturing, construction and services sector, there has been a huge flow of migrants from rural areas to urban cities.</li> <li>• Between 2004-2005 and 2011-2012, the construction sector witnessed one of the largest net increases in employment for all workers, specifically for rural males.</li> <li>• In India, the uneven development post liberalisation, has led to a lot of inter- State migration.</li> <li>• Initially, while most of the migration was to Delhi, nowadays it has increased to southern States as well.</li> <li>• The positive outcomes of such inter-State migration include               <ul style="list-style-type: none"> <li>◦ increased access to higher paying jobs when compared to origin States</li> <li>◦ better household welfare due to remittances</li> <li>◦ ease of mobility etc.</li> </ul> </li> <li>• Some reports have even stated how women get more autonomy and decision-making power in the family due to the absence of men who migrate.</li> </ul>	<ul style="list-style-type: none"> <li>• However, in migration, where the language barrier is a big obstacle, rural circular migrants are often at the mercy of middlemen or brokers.</li> <li>• They are made to work in unhygienic and unsafe conditions with little to no protective equipment.</li> <li>• Additionally, indigenous wage groups and unions resent these migrants as they are seen as taking away their jobs by agreeing to work for lower wages.</li> <li>• The study also says that this kind of migration is merely subsistence migration i.e., it's the bare minimum.</li> <li>• The migrants are able to barely provide for themselves and their families, with no scope for further asset creation or savings.</li> <li>• There is also a certain precarity associated with these jobs as they are seasonal and often irregular.</li> <li>• This precarity was on clear display during the pandemic in 2020.</li> </ul>

**Conclusion**

- It is high time that **States start actively formulating policy** to understand the extent of circular migration.
- Some States like Kerala have announced **health insurance schemes for migrant workers (Awaz Health scheme)**.
- However, there **needs to be more effort** to ensure migrants rights.
- The precarity of workers needs to be addressed and there should be more efforts to integrate them in the destination States.

## Quick Look

### 1. Golden Temple

- Guru Ramdas Sahib, the 4th of 10 Sikh gurus, started the construction of the temple and its pool in the 1500s as a place of worship for all.
- The temple has been renovated many times, adding features such as the marble inlays along the floor.
- Maharaja Ranjit Singh, founder of the Sikh Empire of India (1799-1849) had the temple's upper floors covered in 750 kilos of pure gold.
- The Sikh scripture, the Guru Granth Sahib, is housed within the golden temple of Harmandir Sahib.

### 2. Panchnama

- It literally means “record of observation by five people”.
- It is a document having legal bearings that records evidences and findings that an officer makes at the scene of an offence/crime.
- However, it is not only the recordings at the scene of a crime
- it can be anywhere that may be related to the crime/offence and from where incriminating evidence is likely to be collected.
- The word Panchnama is not used as such or defined particularly anywhere in any book of law
- It can be read into Section 100 under Chapter VII of The Code of Criminal Procedure, 1973 (Cr.P.C.), which mandates an Investigating Officer to prepare PANCHNAMA.

### 3. AUKUS

- Established in 2021, the AUKUS is intended to be a strategic partnership among Australia, the United Kingdom (UK), and the United States
- The objective is to bolster their allied deterrence and defense capabilities in the Indo-Pacific.
- The trilateral partnership, which builds on their decades-long security cooperation, has two pillars.
- Pillar I revolves around the acquisition and development of conventionally armed nuclear-powered submarines for the Royal Australian Navy;
- Pillar II calls for collaboration on advanced capabilities that will involve technology and information sharing;

### 4. Controller General of Accounts (CGA)

- CGA, in the Department of Expenditure, Ministry of Finance, is the Principal Accounting Adviser to the Government of India.
- It was established in October 1975 to administer matters pertaining to the departmentalisation of the accounts of the Union.
- It is responsible for establishing and managing a technically sound management accounting system.
- The Office of CGA prepares monthly and annual analysis of expenditure, revenues, borrowings, and various fiscal indicators for the Union Government.
- It further formulates policies relating to general principles, forms, and procedures of accounting for the Central and State Governments.

### 5. Nagorno-Karabakh Region

- It is a mountainous and heavily forested region that under international law is recognised as part of Azerbaijan.
- Ethnic Armenians who constitute the vast majority of the population there reject Azeri rule (the legal system of Azerbaijan).
- After Azerbaijan's troops were pushed out of the region following a war in the 1990s, these ethnic Armenians have been in administrative control of Nagorno-Karabakh, with support from Armenia.

## Prelims Track Question

**Q1. Consider the following statements with reference to Nuclear fission**

1. This process often produces free neutrons and gamma photons and releases a very large amount of energy
2. This is an exothermic chain reaction.

**Which of the statements given above is/are correct?**

- A. Only 1
- B. Only 2
- C. Both 1 and 2
- D. Neither 1 nor 2

**Q2. Consider the following statements about GOBAR-DHAN Scheme**

1. GOBAR-DHAN Scheme was Launched by the Ministry of Jal Shakti in 2018 with aims to augment income of farmers by converting biodegradable waste into compressed biogas.
2. The scheme is being implemented as part of the Swachh Bharat Mission (Gramin).

**Which of the statements given above is/are incorrect?**

- A. Only 1
- B. Only 2
- C. Both 1 and 2
- D. Neither 1 nor 2

**Q3. Which of the following is true with respect to the difference between net national product (NNP) and gross domestic product (GDP) in terms of their calculation?**

- A. NNP calculates only goods produced within the country, whereas GDP calculates both goods and services.
- B. GDP calculates goods and services produced by a country's citizens, whereas NNP considers domestic production as well as production of overseas citizens.
- C. The calculation of GDP covers a time period of one year, but NNP considers a time period of two years.
- D. GDP reflects the size of the economy, whereas NNP indicates the per person income in the country.

**Q4. Consider the following statements about effect of nanoparticles**

1. High concentrations of these droplets increase the proportion of solar radiation reflected back to space, causing a cooling effect on climate.
2. Long exposures to high concentrations of nanoparticles cause lung problems and cardiovascular disease.
3. Infant mortality, neonatal complications and birth defects are likely to increase with increasing concentrations of matter smaller than 10  $\mu\text{m}$ .

**How many of the statements given above is/are correct?**

- A. Only one
- B. Only two
- C. All three
- D. None

**Q5. Consider the following statements regarding the 2023 Nobel Prize in Physics**

1. It recognizes the research to measure the rapid processes in which electrons move or change energy.
2. Attosecond physics has potential applications in both electronics and medical diagnostics.

**Which of the statements given above is/are correct?**

- A. Only 1
- B. Only 2
- C. Both 1 and 2
- D. Neither 1 nor 2

**Q6. Consider the following statements with reference to Purchasing Managers Index**

1. It is a survey-based measure that asks the respondents about changes in their perception about key business variables as compared with the previous month.
2. It is calculated for the manufacturing sector only.
3. It is usually released at the start of every quarter.

**How many of the statements given above is/are correct?**

- A. Only one
- B. Only two
- C. All three
- D. None

**Q7. Consider the following pairs**

1. **Shimla agreement 1972:** India-Pakistan countries were supposed to take measures not to violate the Line of Control in Jammu and Kashmir.
2. **1914 Simla Convention:** the McMahon Line is the demarcation line agreed between Tibet and British Raj as part of it.

**Which of the pairs given above is/are correct?**

- A. Only 1
- B. Only 2
- C. Both 1 and 2
- D. Neither 1 nor 2

**Q8. Consider the following statements**

1. Credit Rating is an assessment of the creditworthiness of a borrower in general terms or with respect to a particular debt or financial obligation.
2. There is only a single credit rating agency registered under SEBI named CRISIL.
3. The ratings are divided into two categories viz. Investment Grade and Speculative Grade.

**How many of the statements given above is/are correct?**

- A. Only one
- B. Only two
- C. All three
- D. None

**Q9. The 2023 Nobel Prize for Medicine is associated with**

- A. CRISPR - Cas9 Technology
- B. Somatic Cells
- C. Tuberculosis
- D. mRNA Technology

**Q10. Which of the following statements describe the term "Circular Migration" ?**

- A. Permanent relocation of individuals from one country to another.
- B. Temporary movement of individuals between two or more places, often for seasonal work.
- C. Forced displacement of people due to conflicts or disasters.
- D. The process of seeking asylum in another country.

## Prelims Track Answer

**Ans. 1 Option C is correct**

**Explanation**

- In nuclear physics, nuclear fission is a radioactive decay process in which the nucleus of an atom splits into smaller parts [lighter nuclei].
- The fission process often produces free neutrons and gamma photons [gamma rays], and releases a very large amount of energy [exothermic reaction]. **Hence, statement 1 is correct.**
- Exothermic = Liberation of Heat during a reaction. [ $\text{CaCO}_3$ (calcium carbonate or lime) +  $\text{H}_2\text{O}$  (water)  $\rightarrow$   $\text{Ca(OH)}_2$ (calcium hydroxide) +  $\text{CO}_2$  + HEAT] **Hence, statement 2 is correct**
- The nuclear fission process may take place spontaneously in some cases or may be induced by the excitation of the nucleus with a variety of particles (neutrons, protons, deuterons, or alpha particles) or with electromagnetic radiation in the form of gamma rays.
- In the fission process, radioactive products are formed, and several neutrons are emitted.
- These neutrons can induce fission in a nearby nucleus of fissionable material and release more neutrons causing a chain reaction.

**Ans. 2 Option D is correct**

**Explanation**

- The ministry of Jal Shakti has launched the GOBAR (Galvanizing Organic Bio-Agro Resources) - DHAN scheme. **Hence, statement 1 is correct.**
- The scheme is being implemented as part of the Swachh Bharat Mission (Gramin). **Hence, statement 2 is correct.**
- The Swachh Bharat Mission (Gramin) comprises two main components for creating clean villages – creating open defecation free (ODF) villages and managing solid and liquid waste in villages.
- Keeping villages clean, increasing the income of rural households, and generation of energy from cattle waste.
- The scheme also aims at creating new rural livelihood opportunities and enhancing income for farmers and other rural people.

**Ans. 3 Option B is correct**

**Explanation**

- GDP calculates goods and services produced by a country's citizens, whereas NNP considers domestic production as well as production of overseas citizens. **Hence, option B is correct.**

- Both economic indicators, i.e., GDP and NNP, calculate the money value of the goods and services produced by a country.
- In the case of GDP, the value is calculated only for domestic productions.
- On the other hand, NNP also includes the value of goods and services produced by overseas citizens of the country.

**Ans. 4 Option C is correct**

**Explanation**

- Nanoparticles (NPs) are tiny particles between 1 and 100nm.
- Due to their ultrafine size, they can be suspended in the atmosphere for a long time and can travel longer distances.
- They enter the environment from various sources, including natural, incidental and manufactured processes.
- High concentrations of these droplets increase the proportion of solar radiation reflected back to space, causing a cooling effect on climate. **Hence, statement 1 is correct.**
- Long exposures to high concentrations of nanoparticles cause lung problems and cardiovascular disease. **Hence, statement 2 is correct.**
- Infant mortality, neonatal complications and birth defects are likely to increase with increasing concentrations of matter smaller than 10  $\mu\text{m}$ . **Hence, statement 3 is correct.**

**Ans. 5 Option C is correct**

**Explanation**

- Recently, the Nobel Prize for Physics 2023 was awarded to France's Pierre Agostini, Hungarian-Austrian Ferenc Krausz and French-Swedish Anne L'Huillier.
- They have demonstrated a way to create extremely short pulses of light that can be used to measure the rapid processes in which electrons move or change energy. **Hence, statement 1 is correct.**
- The electrons that travel around an atom's nucleus move so fast that it is impossible to observe them in real time.
- But now, we can observe and study the movement of electrons, by producing pulses of light that last only attoseconds ( $1 \times 10^{-18}$  of a second).
- Attosecond physics gives us the opportunity to understand mechanisms that are governed by electrons.

- It has potential applications in both electronics and medical diagnostics. **Hence, statement 2 is correct.**

**Ans. 6 Option A is correct**

**Explanation**

- Purchasing Managers Index is a survey-based measure that asks the respondents about changes in their perception about key business variables as compared with the previous month. **Hence, statement 1 is correct.**
- Purpose: To provide information about current and future business conditions to company decision makers, analysts, and investors.
- It is calculated separately for the manufacturing and services sectors and then a composite index is also constructed. **Hence, statement 2 is incorrect.**
- The PMI is a number from 0 to 100.
- A print above 50 means expansion, while a score below that denotes contraction.
- A reading at 50 indicates no change.
- It is usually released at the start of every month. **Hence, statement 3 is incorrect.**
- It is considered a good leading indicator of economic activity.

**Ans. 7 Option C is correct**

**Explanation**

- The Shimla agreement of 1972 was more than just a peace treaty, it was the result of the India-Pakistan war of 1971 and sought to countermand the effect of such war.
- Both countries were supposed to take measures not to violate the Line of Control in Jammu and Kashmir which helps maintain peace among India and Pakistan and acts as a significant CBM. **Hence, statement 1 is correct.**
- The McMahon Line is the demarcation line agreed between Tibet and British Raj as part of the 1914 Simla Convention **Hence, statement 2 is correct.**
- It separates their respective spheres of influence in the eastern Himalayan region along northeast India and northern Burma (Myanmar).
- The Republic of China was not a party to the agreement, but its representative had agreed to the overall boundary of Tibet, which included the McMahon Line.

**Ans. 8 Option B is correct**

**Explanation**

- Credit Rating is an assessment of the creditworthiness of a borrower in general terms or with respect to a particular debt or financial obligation. **Hence, statement 1 is correct.**
- It can be assigned to any entity that seeks to borrow money like an individual, corporation, state or provincial authority, or sovereign government.
- Credit Rating Agency is a company that assigns credit ratings.
- There are six credit rating agencies registered under SEBI namely, CRISIL, ICRA, CARE, SMERA, Fitch India and Brickwork Ratings. **Hence, statement 2 is incorrect.**
- All credit agency businesses use a variety of terminologies to generate credit scores.
- Therefore, ratings are divided into two categories namely Investment Grade and Speculative Grade. **Hence, statement 3 is correct.**

**Ans. 9 Option D is correct**

**Explanation**

- The 2023 Nobel Prize for Physiology or Medicine was recently awarded to Katalin Kariko and Drew Weissman.
- They won the award for developing the mRNA vaccine technology that became the foundation for history's fastest vaccine development programme during the COVID19 pandemic. **Hence, Option D is correct**
- Here, the mRNA is coded to tell the cells to recreate the spike protein of the coronavirus SARS-CoV-2, which causes Covid-19.

**Ans. 10 Option B is correct**

**Explanation**

- Circular migration is a repetitive form of migration wherein people move to another place and back according to the availability of employment. **Hence, Option B is correct**
- It became quite popular in the 60s and 70s with the advent of globalisation and development.
- It is a phenomenon mostly among low-income groups who migrate to avail of seasonally available jobs in another country, city, place etc.
- One is called a circular migrant if he has completed at least 'two loops' between two countries.

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+91 9999 057869  
www.mentorshipindia.com

A-92, Third Floor, Hari Nagar  
Delhi - 110064

 @mentorship.india