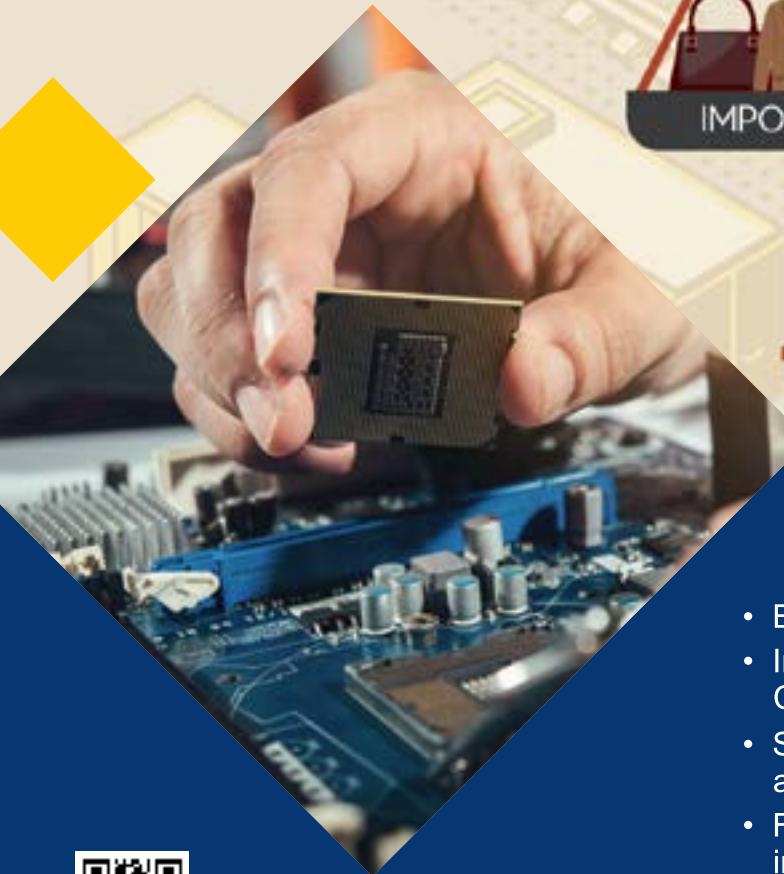


PERFECT 7

FORTNIGHTLY CURRENT AFFAIRS

May 2022 / Issue -2

Useful for UPSC and State PCS exams



- Employment Scenario in India
- Indo-German Inter Governmental Consultations
- Semiconductor Industry in India- Challenges and Opportunities
- Forest Fires and Forest-dwelling Communities in India
- Oil Shocks and Inflation In India: A Story Of Shifting Vulnerabilities
- India at the center of global politics
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Mr. Vinay Kumar Singh

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Yours very truly,

Q H Khan
Managing Director

PREFACE



Current Affairs has an important role in the examinations conducted by Union Public Service Commission and State Public Service Commissions. It is necessary for the candidate to have knowledge of relevant information on issues of national and international importance. Perfect 7 Magazine is being presented fortnightly in front of the students to fulfill this requirement. Preparation of civil services exam is only completed when candidates have holistic knowledge and analysis of the dynamic nature of the current affairs. 'Perfect7' keeps this vision and approach and understands the multidimensional need of students at the content level, so this magazine has presented the current affairs with relevant issues of general studies. Keeping in mind the mains exam, current articles on 7 burning issues, Ethics Case Studies, Biographies of important personalities, coverage of most useful topics of various sections of General Studies and the most important current affairs issues are being covered for Preliminary Examination in which emphasis is being given on environmental, ecology, art and culture, science and technology, economy issues. A short section on Terminology will also be part of Perfect 7 Magazine.

Brain boosters with 7 themes based graphics are being presented in a concise form to enhance the conceptual understanding of the students. Apart from this, updated information on Global Initiatives, Global Institutions, Structure of Organizations, Functioning, Important Reports, and Indices will be included in this magazine, which is asked prominently in the Civil Services Examination. To give emphasis on facts and analysis, keeping in view the trends of new nature of questions in Preliminary and Main Examination of Civil Services, an inclusive magazine is being provided to the students so that they can give the right direction to their preparation by understanding the new requirements of Civil Services Examination. We hope that Perfect 7 in its new form will prove to be very useful. Your suggestions are always welcome.

Vinay Kumar Singh
Editor
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PERFECT 7

FORTNIGHTLY CURRENT AFFAIRS

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Hindi & English
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News Paper



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Employment Scenario in India

Employment- Basics

Employment refers to the state of having a job. In India, there are the following major indicators related to employment.

- Labour Force Participation Rate (LFPR)- LFPR is defined as the percentage of persons in the labour force (i.e. working or seeking or available for work) in the population.
- Worker Population Ratio (WPR)- WPR is defined as the percentage of employed persons in the population.
- Unemployment Rate (UR)- UR is defined as the percentage of persons unemployed among the persons in the labour force.

Recent Data

- According to the quarterly periodic labour force survey released by the ministry of statistics and programme implementation, the unemployment rate in urban India in the October-December quarter of 2021-22 fell for the second consecutive quarter to 8.7 per cent from 9.8 per cent in the July-September quarter and 12.6 per cent in the April-June quarter after the ebbing of the second wave of the pandemic. It stood at 10.3 per cent in the same quarter of 2020-21.
- In March 2022, India's labour participation rate (LPR) fell to 39.5 per cent from 39.9 per cent in February, according to a report by the Centre for Monitoring Indian Economy (CMIE). The above two recent reports are showing an interesting employment scenario in India, where on the one

hand employment opportunities are slowly improving after the pandemic shock, on the other hand, fewer people are searching for work.

Issues related to Employment in India

- Despite slow improvement in employment opportunities, India's unemployment rate is still high. This situation can be attributed to many factors. India still has inadequate skilling infrastructure leading to a scarcity of suitable employees as per current and rapidly changing requirements of the industry. Slow growth in labour-intensive sectors such as textile, toys, and footwear manufacturing also contributes to high unemployment. Micro, small and medium enterprises have a very high potential for providing employment but they are still in the nascent stage in India. India's growth trajectory has also been uneven as India jumped directly to services from agriculture without adequate manufacturing growth which is a very critical sector of the economy for job creation.
- There is also an issue of underemployment in India, both visible as well as invisible. Visible unemployment refers to a condition when a person works for less than 40 hours a week. For example, a driver driving a car only 20 hours a week due to less demand. If an overqualified person is opting for a job requiring lesser skills, the condition is referred to as invisible underemployment. For example,

an engineering graduate working as a clerk. This problem of underemployment can be inferred from our GDP data related to agriculture. In India, agriculture contributes around 20% of GDP but more than 40% of the labour force is involved in it, thus indicating the presence of underemployed people in large numbers. This condition of underemployment is mainly due to skill-job mismatch. As most of the job availability is in the blue-colour segment while the proportion of highly educated youths having University degrees is increasing in India. In addition to that, rapid technological changes also make workers in a particular area underemployed in other sectors, if any new technology arrives in their previous sector of expertise. According to NITI Aayog three year action agenda from 2017-18 to 2019-20, the problem of underemployment is much bigger in India in comparison to unemployment.

- India has very low labour force participation. In addition to that, India has the lowest female labour force participation ratio among the top 20 economies, much lower than Bangladesh and even lower than Saudi Arabia. The overall less labour participation rate has been explained by various economists by the discouraging drop-out phenomenon. According to their views, when people do not get a job of desirable status or they understand that the job market is not favourable, they tend to withdraw from the labour market. Some other economists have

explained lower labour participation by increasing trends of people completing their college education and getting their degrees, thus remaining out of the labour market wilfully. The lower participation of women in the labour force has been explained by the combination of the above factors with day to day discrimination against women and the issues like safety, workplace being far away from home, transportation etc.

- A great bulk of jobs in the Indian labour market are informal. Formal jobs account for well under 15% of total employment in the country while over 85% are informal jobs. This includes not only agriculture but also big sectors like retail. Informal workers are commonly owners of small household businesses, someone making tea on the roadside, fruit vendors or security guards. Informal jobs do not provide any protection to the workers thus leaving their fates uncertain. This crisis of lack of formal jobs can be mainly attributed to a laggard manufacturing sector, which is yet to take off despite various government efforts. Even the liberalisation, privatisation and globalisation reforms of 1991, which were expected to promote jobs in the formal sector, but have been unable to do that.

- Rapidly changing technology, as well as the COVID pandemic, have also affected the nature of employment. The technological changes have promoted the gig economy, where workers can be hired and fired at a much faster pace. There is also an increasing demand for technically educated workers. Due to the COVID pandemic, working from home is a new normal. It has also supported job growth in many sectors such as e-commerce, delivery services, healthcare etc.



Government Measures to Promote Employment

The government has taken several measures to deal with employment-related issues. Skill India mission tries to map industrial requirements with skill training thus promoting jobs in highly technical sectors such as 3D printing, data sciences, search engine optimisation, digital marketing etc. Slow growth in the manufacturing sector, which has been an Achilles heel for India is being fast-tracked through Make in India which aims to increase the share of manufacturing in GDP to 25% and create 100 million additional jobs. The government is also focusing on entrepreneurship promotion as well as self-employment generation through schemes such as Startup India as well as Prime Minister Employment Generation Programme. Micro, Small and Medium Enterprises are being promoted through steps such as Priority sector lending, Technology innovation fund for MSMEs etc. To provide a cushion to the unemployed, the government is also continuing with the Mahatma Gandhi National Rural Employment Guarantee Scheme.

Way Forward

While the above measures will help in promoting good quality jobs if implemented properly. There is also a need for a suitable long term vision regarding dealing with unemployment,

which addresses both the supply and demand-side problems in employment generation. This vision should be supported by robust and objective data, which can be used by policymakers. In addition to that, there should be a specific focus on job creation for vulnerable sections such as SC/STs, women, the disabled etc. Only then will we be able to achieve the goal of 'Sabka Saath Sabka Vikas'.

NOTES



Indo-German Inter Governmental Consultations

Why in News?

- India and Germany discuss expansion of trade, energy, cultural linkages; nine agreements signed.

Context:

- Prime Minister Narendra Modi and German Chancellor Olaf Scholz have decided to launch an Indo-German Partnership for Green and Sustainable Development under which Germany has decided to provide additional development assistance of €10 billion till 2030 to support India's green growth plans.
- In COP meeting of Glasgow, India increased its climate ambition and showed the world that for them green and sustainable growth is an article of faith. Prime Minister Narendra Modi thanked Germany and Chancellor Scholz (for the development assistance). He exclaimed that they have decided to form a green hydrogen task force that will help increase green hydrogen infrastructure in both countries.

What is Inter Governmental Consultations?

- The Inter-Governmental Consultations review the cooperation between India and Germany on a wide range of areas and also aim to identify new areas of cooperation.
- The IGC comprises a broad range of areas of mutual interest.
- The Inter-Governmental Consultations signify the special nature of friendship between the two nations.

Focus Areas of Inter-Governmental Consultations:

- The IGC is a unique mechanism which brings together several ministers and officials from both sides, including the two leaders, to engage in bilateral discussions on cooperation and partnership across a range of areas. The focus areas for the IGC included global security policy issues and common efforts to tackle the climate crisis.
- The two sides signed a total of nine agreements during the IGC that includes
 - Renewable energy partnership.
 - Migration and mobility partnership.
 - Joint initiative on the implementation of triangular development cooperation projects in third countries.
 - Joint initiative on forest landscape restoration.

6th Inter-Governmental Consultations- Key Decisions:

- Green and Sustainable Energy Partnership
 - India and Germany agreed to develop a hydrogen roadmap for green and sustainable development, based on inputs by Indo-German Green Hydrogen Task Force that will be supported by the Indo-German Energy Forum.
 - The two leaders in a statement agreed to establish a green and sustainable energy partnership focusing on innovative solar energy and other renewables.
 - The partnership envisages a whole-of-government approach to India-Germany cooperation on SDGs

and climate action and will include associated challenges for electricity grids, storage and market design to enable just energy transition.

- Germany expressed its intention to provide technical and financial cooperation under the partnership, which includes concessional loans up to 1 billion Euros from 2020-2025.
- Germany has also agreed to make an advance commitment of 10 billion Euros of new and additional development assistance until 2030.

• Agro-Ecology Cooperation

- India and Germany also agreed to establish cooperation on 'Agro-ecology and Sustainable Management of Natural Resources' in the agricultural sector. The cooperation is expected to benefit the rural population of India and small-scale farmers by focusing on food security, income, climate resilience, biodiversity, improved soil, water availability and forest restoration.
- Germany expressed its intention to provide financial and technical cooperation and concessional loans up to 300 million Euros till 2025 for the agro-ecology cooperation depending on project preparation and availability of funds.
- The two countries also agreed to deepen cooperation in restoring forest landscapes under the Bonn Challenge to fight poverty, preserve and restore biodiversity and fight climate change.
- Triangular Development Cooperation Projects in Third Countries
 - The two countries also decided to work on the 'Triangular Development

Cooperation' based on individual experiences and strengths in development cooperation and offer inclusive, sustainable and viable projects in third world countries to support the achievement of UN SDGs.

- o The two countries also acknowledged their joint responsibility for the protection of the planet and to enable inclusive and sustainable growth.

- India and Germany on Ukraine Crisis

- o The PM said that India was worried about the humanitarian impact of the Russia-Ukraine conflict. He added that right from the beginning of the conflict, India had called for a stop to violence and stressed on the importance of dialogue to sort the crisis. "There will be no winners. All will suffer. That is why we favour peace," he said.

- o PM Modi pointed out that because of the disruption caused by the crisis, oil prices were sky high and there was a shortage of food and fertiliser in the world and developing countries and under developed nations were suffering the most.

- o Both nations also reiterated the need for an immediate cessation of hostilities and emphasised that the contemporary global order has been built on the UN Charter.

- o They also discussed the destabilizing effect of the Ukraine conflict and its broader regional and global implications and agreed to remain closely engaged on the issue.

Indo-German Research Collaborations in Green Mobility

- In the space of research collaborations too, there are exciting developments afoot in the field of green mobility and exploring smart solutions for urban transportation. In 2018, the Indian Institute of Technology (IIT)-Kharagpur began collaborations with



the Technical University of Munich to setup a research centre on intelligent transport systems.

- The research centre is currently based in IIT-Kharagpur but an office is slated to be established in Munich too. The centre primarily focuses on three aspects related to urban mobility. These are:

- o Integrated end-to-end transportation systems.

- o India specific automotive technologies.

- o Collaborative development of automotive systems and softwares.

EU-India Free Trade Agreement Negotiations:

- India and Germany also underlined the enormous potential of bilateral trade and investment and expressed strong support for upcoming negotiations between the European Union and India in a Free Trade Agreement.

- India and Germany agreed to make supply chains more resilient, diversified, responsible and sustainable.

- PM Modi expressed hope that the India-EU FTA talks will progress fast on the lines of the FTA deals signed recently with the UAE and Australia that were completed in record time. He said that India's skilled workers and professionals had benefited the economies of several countries and

the Indo-German Comprehensive Mobility and Migration Partnership being worked out will enable smooth movement of work force.

NOTES



Semiconductor Industry in India- Challenges and Opportunities

Why in News

The Ministry of Electronics and Information Technology has formed an advisory committee of experts to move forward the country's vision of making India a global leader in semiconductor manufacturing, design and innovation. The advisory group of experts comprises senior government officials, established academicians, as well as industry and domain experts.

Semiconductor- Basics

A semiconductor is a substance that has the properties of both conductors and insulators. Semiconductors are electrical insulators at low temperatures and good conductors of electricity at high temperatures. They are mainly of two types, intrinsic semiconductors and extrinsic semiconductors. Intrinsic semiconductors are the pure form of semiconductors. Extrinsic semiconductors are devised by the addition of a small number of impurities in pure crystals. Semiconductors are so useful due to their two important properties. Firstly, their conductivity can be controlled. Secondly, they can give a unidirectional current. In addition to that, they also have the advantage of small size, low power requirement, long life, and high reliability.

Generations of Semiconductors

- The first generation of semiconductors is formed of Silicon and Germanium.
- The second generation of semiconductors is composed of Gallium arsenide, Indium antimonide, etc.

- The third generation of semiconductors is built from Silicon carbide, Gallium nitride, etc.

Applications of Semiconductors

Semiconductors are part of almost all electronic devices such as computers, cell phones etc. They are also used in solar power production. They play a central role in the operation of bank ATMs, trains, internet, wireless communication etc. They are important components of regular consumer electronics such as refrigerators, ACs etc. They are useful in newer technologies such as self-driving cars, 3D printing, and the Internet of Things (IoT). They also form the backbone of the automobile and medical device industry.

Semiconductor Industry in India

The semiconductor industry in India is still in the nascent stage. While India has significant expertise and talent in chip design, its manufacturing capability is yet to take off. Recently, the Indian government is pushing for the Atmanirbharta in semiconductor manufacturing through its many initiatives. The Indian government has approved the Semicon India program with a total outlay of 76000 crores for the development of the semiconductor and display manufacturing ecosystem in our country. This program will provide financial support to companies investing in semiconductor and display manufacturing and design. An independent India Semiconductor Mission has been set up within Digital India Corporation,

having administrative and financial autonomy. This mission will formulate and drive India's long term strategies in the field of semiconductors. The government has also launched the Scheme for the Promotion of Manufacturing of Electronics Components and Semiconductors (SPECS). These efforts have started showing responses. The government is increasingly receiving proposals from companies for setting up semiconductor and display fabrication units.

Challenges-

Despite the above efforts, there are still some challenges.

- In establishing a fabrication unit, large scale investment is required. There is also a long gestation period between investment and payback. In comparison to that, the support currently provided by the government is miniscule.
- There is also rapid change in technology in the field of semiconductors so it remains difficult for the manufacturing firm to keep up with technology without adequate funding.
- A fabrication unit requires a consistent supply of electricity and water. According to Greenpeace, the world's largest chipmaker TSMC alone uses 4.8% of Taiwan's electricity annually. When Taiwan was hit by a drought last year, TSMC ordered water from trucks to ensure no disruption to its manufacturing. When the government prioritised the supply of water to chip-makers, this led to tensions between the companies and the farmers.



In a country like India, electricity and water-intensive nature is a much bigger obstacle.

- Semiconductor manufacturing also involves toxic gases and chemicals that are responsible for Greenhouse gas emissions. There is also the issue of disposal of hazardous wastes released from the fabrication units such as antimony, phosphorus, hydrogen peroxide, nitric acid, sulphuric acid etc.
- India also lacks previous expertise in the field of establishing semiconductor fabrication facilities. The human resource capability in the semiconductor fabrication field is also limited in India.
- Semiconductor fabrication units require very specific raw materials. Numerous chemicals that are involved in semiconductor fabrication need to be imported into India.
- Market demand is also consistently changing and increasing in this field, so keeping up with this market demand is also difficult for firms in terms of product and volume.

Opportunities

While there are numerous challenges, there is also ample opportunity for India in the field of semiconductors.

- The demand for semiconductors is ever increasing. The COVID pandemic has forced people to take sizable parts of their daily economic and essential activities to online platforms, thus pushing the demand for chip-powered

computers and smartphones in peoples' lives.

- In India, there is the availability of cheap labour and design talents in comparison to western countries and china respectively.
- Due to the push in manufacturing in the allied sectors such as automobiles in India, there is also a large market for semiconductor manufacturing in India. The semiconductor market of India is estimated to touch \$63 billion by 2026 compared to \$15 billion in 2020.
- The focus of the government is shifting toward this field, which is resulting in assistance in the form of financial support, reducing bureaucratic red tape, support for the land acquisition and tax rebates.
- The existing expertise in the chip designing area will also guide the establishment of fabrication manufacturing units as well as packaging units.
- The increasing trade war between China and the US also provides an opportunity for India to become a global semiconductor manufacturing hub.

Way Forward

While the measures taken by the government are praiseworthy, they are not the first in this direction. Earlier attempts failed due to policy instability in this field. Now the government should ensure that this policy of supporting semiconductor units remains continuous. The government should prepare a road map for this sector which first captures the lower hanging fruit in the chip designing field, then moves to the packaging field, and finally towards the manufacturing field. There is also a need for providing fiscal space to the states so that they can support the semiconductor units established within their boundary. India should use multilateral grouping such as QUAD to gain expertise in semi-

conductor manufacturing. The semiconductor industries in India should focus on recycling raw materials. As the manufacturing industry requires high precision, manufacturing units should also promote automation and robotics wherever necessary. The government should promote and facilitate indigenous intellectual property rights generation in the field of semiconductor design and manufacturing. There should be increased collaboration and partnership with national and international agencies, industries and universities for research and skill development.

Conclusion

Every problem comes with an opportunity. This statement is also true of the acute shortage of semiconductors last year. This shortage pushed India to devise innovative ways to create a semiconductor ecosystem. If properly implemented, these ways may turn India from a needy importer to an export hub of semiconductors.

NOTES



Forest Fires and Forest-dwelling Communities in India

Why in News

In recent times, there is an increase in the incidence of forest fires all over India and the world. Famous conservation areas such as the Sariska tiger reserve in Rajasthan and Simlipal wildlife sanctuary in Orissa have also been affected by these forest fires. Regarding these incidents, there is a growing debate on the role of forest-dwelling communities in handling these forest fires.

Areas prone to Forest Fires

Based on previous fire incidents and recorded events, forests of the North-east and central India regions are the most vulnerable areas to these fires. Forests in Assam, Mizoram and Tripura have been identified as 'extremely prone areas' to forest fires. Forests in Andhra Pradesh, Manipur, Meghalaya, Nagaland, Odisha, Maharashtra, Bihar and Uttar Pradesh have been classified as 'very highly prone areas' to forest fires.

Causes of Forest Fires

Forest fires are caused by both natural and anthropogenic factors.

- Of the natural causes, climate change is one of the major factors. Fires of longer duration, increasing intensity, higher frequency and highly inflammable nature are being associated with climate change. In India, forest fires are also related to the seasons. These fires are most commonly reported during March and April when the ground has a large quantity of dry woods, dead leaves, stumps, dry grass and weeds that can make the forest

go up in flames if there is a trigger. Extreme heat and dryness as well as friction created by rubbing branches with each other can also initiate forest fire. The lack of soil moisture is also a key factor in the forest fire. In Uttarakhand, a deficient monsoon season which led to a decrease in soil moisture has played an important role in recent fire incidents. Lightning and thunderstorms also play a role in forest fires.

- In anthropogenic causes, both non-deliberate and deliberate factors may be there. Sometimes a small spark from a cigarette butt and discarded lit matchstick can cause a forest fire. These fires can also be caused during the traditional use of forest resources such as collecting Mahua flowers. They may also be the result of construction activities in forest areas. Traditional agriculture methods such as shifting cultivation may also cause fire during the clearing of land for agriculture.

Difficulties in Controlling Forest Fires

Forest fires are difficult to control due to the locality of the forest and the issue of access to it. In the peak fire season staff shortage is also a concern. Timely mobilisation of fuel and equipment, depends upon the type of fire which is a challenging task. As it is difficult to transport heavy vehicles loaded with water into the thick forest, the majority of fire fighting is initiated manually using blowers. Recently, helicopters are also being used for firefighting. Wind speed and direction also present a challenge for firefighters.

Impacts of Forest Fire

In addition to the loss of human lives, forest fires have other adverse impacts too. The loss of forest cover leads to the removal of sinks and reservoirs for carbon. In India, the livelihood of crores of people who are dependent on forests for fuel, wood, bamboo, fodder and small timber gets adversely affected. The heat generated during forest fires destroys animal habitats thus reducing biodiversity. Soil moisture and fertility are also affected by the fire. The trees that survive fire remain stunted. Forest fires negatively affect conservation measures. The recent fire in Sariska Tiger Reserve has affected its tiger conservation measures. Forest fires are also causing air pollution and the release of greenhouse gases. Forest fires also reduce tourism potential.

Role of Forest-dwelling Communities

For centuries, forest-dwelling communities have fine-tuned the balance between their survival needs and the natural world's regeneration. Their traditional practices are the major reason for the health of a large part of our ecosystem. However in India, we have not moved ahead from the colonial forestry model which treated traditional communities as miscreants and tried to protect the forest resources from them. This colonial model had transitioned into a fortress-style conservation model that made a barrier between forest and local communities in the post-independence period. While the world was becoming aware of traditional community knowledge



India still has legislation criminalising the intentional burning of forests. According to section 26 of the Forest act 1927, setting fire in a reserved forest is illegal and if a person is found to have done so willingly, one can lose all rights to pasture and forest produce in that area. Section 30 of the Wildlife Protection Act also prohibits setting fire. It is now well known that fire of low to moderate intensity reduces the fuel for larger blazes and aids the germination of plants whose seeds need fire to crack open. It also prevents uncontrolled Lantana proliferation reducing fire intensity.

Recognizing their crucial role in recent times in preventing disasters like forest fires, community forest rights of these communities have been recognized under The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006. They are becoming allies in arresting and preventing fires. In Simlipal, for instance, tribal people were on the frontline, battling fires last year and women's self-help groups are creating fire lines this year.

Measures taken by the Government

Since 2004, the Forest Survey of India (FSI) has developed a Forest Fire Alert System to monitor forest fires in real-time. The government has also devised a National Action Plan on Forest Fire to ensure proper coordination between all stakeholders.

Way Forward

Dealing with forest fires requires a multi-pronged approach.

- There should be a focus on forest fire zonation and mapping. This zonation provides a scientific basis for identifying priority areas for management interventions, allocating resources and monitoring the effectiveness of measures to control fires. These risk zones should be reviewed and updated at least once every five years to respond to any changes.
- Many forest fires are man-made and are related to the economic and livelihood issues of people. To make them aware of the danger of forest fires, effective communication strategies specifically targeted at students, farmers, women groups, cattle herders, tourists and pilgrims through school campaigns, radio and TV campaigns as well as music festivals should be used. forest-dwelling communities should be prepared to deliver their responsibilities through capacity building.
- The resilience of forests to fire should be increased through water and moisture conservation, forest floor biomass management and weed management.
- The preparedness for forest fire should ensure early forest fire detection and alert, digitalization of the location of critical resources and assets, the establishment of forest fire lines and controlled burning.
- To suppress the existing fire, there should be a culture of emergent response to fire alerts under which all available resources are used to douse the fire. This culture can be achieved through training at all levels, strengthening of infrastructure related to fire-fighting and coordination with other relevant agencies.
- There should be effective post-fire

management through assessment of loss, proper investigation of the causes and restoration of fire-affected areas.

NOTES



Oil Shocks and Inflation In India: A Story Of Shifting Vulnerabilities

Why in News ?

- The Ukraine war has sustained the current oil shock as well as aggravated the inflation in food items and other commodities.

Different Phases of Oil Shocks and Inflation :

1. The 1970s' oil shock triggered a worldwide bout of high inflation, but subsequent shocks were absorbed without inflation in most countries until now.

- o Crude price shocks of equivalent size occurred in the late 70s, late 90s and over 2002-2005, but the world including India, bore these better.
- o Reasons include openness, cheap imports, more flexible wages and less dependence on oil as well as better monetary policy.
- o Productivity was rising and other adverse shocks were absent.

2. Although world food prices had started rising in 2002, following oil prices, Indian food inflation remained low, partly because minimum support prices (MSPs) rose only marginally in this period.

- o Food stocks fell to an all-time low.
- o But MSPs rose rapidly from 2006-07, as the discipline on procurement prices imposed by low border prices had gone.
- o In 2010-11, both food stocks and inflation peaked.
- o There was a willingness to sacrifice output to reduce inflation peaks.
- o Sharp policy-led demand contractions reduced output growth for each

oil-shock but were most successful in reducing inflation when food price inflation remained low.

3. Oil price shock and Global financial crisis:

- o In India, however, historical high single-digit rates of inflation had halved in the late 90s but hit double digits in 2008, like during the early 70s' oil shock.

- o That oil price shock predated the global financial crisis, and after a brief crash coinciding with it, oil prices rose again and stayed at a high plateau until 2014.

- o Such shocks raise costs across a broad range of sectors, but for sustained inflation, wages also have to rise.

- o The latter is more likely, if food prices also rise in a country where food makes up a large share of its consumption basket, as in India.

- o As high input prices sustained food inflation, India was unable to withstand the combination. Wages rose and second-round effects set in.

- o India was an outlier then, since inflation stayed low in most countries, especially in Advanced Economies (AEs), despite quantitative easing.

- o Food has a low share in AE consumption baskets.

- o Administered domestic fuel prices neither rose nor fell as much as international, but cumulative Indian fuel inflation much exceeded global levels.

- o This ratchet effect contributed to Indian inflation. It was one among other cost-push factors creating low

chronic inflation.

4. After minor falls from 2005, as prices became market determined, the large fall in 2015 was still less than that in international prices since oil taxes in India were raised.

- o Nevertheless, it contributed to achieving the country's inflation target.

Will History Repeat Itself ?

- The war continues, but growing Indian diversity means any challenge also creates some opportunities. Higher border prices help the farm lobby raise MSPs.

- For example, the current wheat price spike is raising domestic prices, but is temporary.

- Most Indian agricultural prices have reached or are above border prices, limiting the rise in MSPs. Farm lobbies now ask for protection.

- Exports have risen as agricultural productivity, marketing infrastructure and coordination have improved.

Impact of Supply Side Actions :

- Supply-side actions are reducing cost-push factors.

- This converts what used to be a permanent cost-push into a temporary shock.

- In the US, covid supply-side bottlenecks are becoming permanent because of excess fiscal stimulus and tight labour markets.

- Therefore, Indian inflation differs from that in the US and need not follow the latter.

Inflation Regime followed in India :

- India is now under a flexible inflation targeting regime.
- Policy rates of interest have to rise, to keep real rates near equilibrium, if inflation is expected to be persistently above the tolerance band.
- This assurance of a reaction helps anchor inflation expectations.

The Condition of Supply shock :

- Under the supply shocks, there is an output sacrifice from disinflation.
- This is especially large when national output is below potential and unemployment is high, as in India.

How to Maintain the Output Level ?

- A counter-cyclical movement in excise taxes, especially on fuel, can reduce this sacrifice.
- If taxes only rise when international oil prices fall, as happened in 2014 and in 2020, but do not fall when international oil prices rise, it will re-impose the earlier ratchet, causing cost creep, keeping Indian inflation higher than international, and making it difficult to anchor inflation expectations.
- World oil prices were lower in early 2021 than they were at end-2014. But Indian retail prices were higher.
- When households and firms expect oil prices to fall after they rise, they learn to look through them and there is less likelihood of second-round effects and a rise in inflation expectations.

Crude oil Price Volatility :

- International oil prices have been excessively volatile after the US Commodity Futures Modernization Act, which eased market-trading position limits, among other deregulations, aggravating market swings.
- Brent oil ranged from \$132



in mid-2008 to \$30 in January 2016, with sharp swings in between. A crash to \$18 with covid did not last long.

- Post Ukraine, it again rose briefly above \$130. The monthly coefficient of variation was 25 before the 2000s and 42 after.
- Such volatility hurts both importer and producer countries and needs to be taken up in international fora.

Conclusion :

- A formula to introduce some counter cyclicity in oil taxes for states as well as the Centre, linked to thresholds in international prices, would

reduce extreme volatility without reverting to the earlier ratchet that pushed up costs.

- It would help establish inflation targeting, reduce delays due to stand-offs between the Centre and states, and be a step towards the inclusion of fuel in India's GST system.
- Governments would still have the power to change taxes on oil at will, but some part of oil taxes would automatically fall with a rise in global oil prices and rise when these prices fall. The changes would be distributed between the Centre and states.

NOTES



India at the center of global politics

Context

The increasing role of India in the activities happening in the present world such as the Russia-Ukraine war, climate crisis, terrorism, prevention of Covid, etc, are bringing India to the center of global politics.

Introduction

India's global stature has been steadily increasing in the recent past. India's policies on issues such as yoga, climate change, terrorism and organized crime, as well as India's regional importance in ASEAN, South Asia, and the Indian Ocean always maintain India's relevancy in the region. But in the Russo-Ukraine war, the importance of India increased from regional to global. In this context, the foreign ministers of China, Mexico, Britain, and Russia visited India, Denmark, Ukraine, America, and Britain are constantly talking to India about the use of their diplomacy to stop the war. These conditions are indicative of India's growing political stature which is bringing India to the center of global politics.

Factors that are keeping India at the center of global politics:-

Ideology:-

India uses the ancient ideology of Sarvadharmā Sambhava, Vasudhaiva Kutumbakam, as well as the modern ideology of democracy, Panchsheel, and peaceful coexistence, which is

conducive to global peace and growth.

Geo-politics:-

India's location gives it a natural edge in the Indian Ocean. At present, global politics is shifting from the Europe-Atlantic region to the Indo-Pacific region. Due to India's natural edge, all the big powers want to establish better relations with India. So we can say that the location of India is also a reason for bringing it to the center of the current global politics.

Young Population and Human Resource:

India represents the world's second-largest population (about 17%). The average age of India's population is 29 years, that is why India is a big market. On other hand, India is the largest supplier of human resources. In the present day consumerist culture and capitalist ideology, both of these (market and labor supply) have more importance. Today, almost all important developed countries want to invest in India whereas the Indian diaspora resides in almost all the countries. This further strengthens India's global position.

Diplomacy :

At present, India's diplomacy is one of the best in the world. On one hand, India is using soft diplomacy through vaccines, space technology and tourism. On the other hand, India is a

major power in ASEAN, Indo-Pacific, and South Asia due to its military strength, which strengthens India's hard power diplomacy. In this way, India has built a strong diplomatic base.

International credibility

At present, there has been an increase in the trust of other countries in India. All countries are praising India's determination on the Doklam issue, a nuclear power with no first use, India's successful mission in space, and India's policy to stop climate change. South-East Asian countries see India as a provider of network security and India's efforts against terrorism and organized crime have been recognized around the world (for example designating Masood Azhar as a global terrorist) increasing international trust of the world towards India.

Importance in International Institutions

At present, India is a non-permanent member of the United Nations Security Council. Many countries are continuously raising the demand for permanent membership for India, including developing countries like Brazil, and South Africa. India always follows international laws and applies the rules of international institutions in the country. India is trying to become

a member of the NSG, apart from this, India is a part of almost all important institutions. India is one of the major finance provider of the World Health Organization and the Human Rights Commission. The Indian Army has played an important role in United Nations operations.

Balanced parameters with vital strengths

While India is playing an important role in the US-led Quad (Australia, Japan, India, and America) organization and on the other hand India is also a member of SCO (an Organization formed under the leadership of Russia and China). India is maintaining its good relations with whole of Europe as well as Britain and USA, while India is doing business with Russia (even after requests from these countries to stop trade with Russia). These conditions reflect India's balanced benchmark. Along with this, India also kept a balanced foreign policy in relations with Palestine and Israel.

Independent foreign policy

India has always followed an independent foreign policy. Even in the Cold War, India stayed away from the capitalist camp and the communist camp and became the member of the Non-Aligned Movement. India faced severe American pressure many times, but India maintained its independent foreign policy in the face of the circumstances, which is visible even today. Today America and Britain are constantly asking India to stop trade with Russia, but India has continued to trade with Russia in the Rubel-Rupee method. Through this trade, India is ensuring "energy security".



In which areas more effort is needed now:-

Although India is at the center of global politics, there are some areas where India still needs improvement. They are as follows-

- Investment projects being done by India in other countries are often delayed. India's reputation suffers due to delays in the INSTC project, the Hambantota port project in Sri Lanka and investment in Bangladesh.
- India still needs tremendous progress at the economic level. Although India is the third-largest economy based on PPP, India also has a huge population, due to which the fiscal deficit remains in India and India is not able to invest in other countries like China and America.
- Due to the internal issues many times India faces the global condemnation. As for the removal of Article 370, the European Parliament and OIC had condemned India.
- In many cases, lack of clear decision-making also affects India's international reputation, such as India's apathetic stand on the coup in Myanmar, Afghanistan had made India an object of criticism.
- China's growing power and border dispute with China hinders India's momentum. Defeating China diplomatically is difficult for India.

Conclusion

- India's ever-increasing stature in the world also imposes responsibility on India. Although humanitarian co-operation in many other countries like Afghanistan, Maldives, and Sri Lanka, taking a stand for Bhutan in Doklam, effectively placing the talk of developing and underdeveloped countries on climate change, it appears that India is now moving from regional power to global leader. Finally, we can say that India is at the center of global politics in the present conditions but India still has a long way to go to become the supreme power of the world.

NOTES



A Tussle Between Judiciary And Executive

Context

In the recent meeting of Chief Justices of High courts and Chief Ministers of the states, there has been a situation of conflict between the executive and the judiciary.

Introduction

Recently, there was a conference held in which Chief Justices of High Courts and Chief Ministers of the States participated. The Prime Minister of India and the Chief Justice of the Supreme Court also attended this conference. Where in a way, the Chief Justice said that the government is responsible to a large extent for the pending cases because the government itself is a party in more than half of the cases. Thus the Chief Justice largely blamed the executive for judicial incompetence. After this, the Indian Prime Minister made statements related to the language of the court and other reforms. It shows the tussle between the judiciary and the executive in India.

The causes of conflict between the judiciary and the executive

- According to the provisions of the Indian Constitution, the legislature (Parliament and State Legislative Assembly) has the right to make laws in India, while the implementation

of these laws is ensured by the executive. Whereas, the Constitution itself has given the right to interpret these laws to the judiciary. Therefore, whenever the judiciary was against the laws made by the legislature or the executive, then there is a situation of conflict that has arisen between the judiciary and the executive.

- Judicial hyperactivism is also considered one of the causes of the conflict between the judiciary and the executive. Judicial activism refers to the interference of the court in executive affairs. In many cases, it has been observed that the judiciary under taken the role of lawmaker and enforcer. The order given by the former court has the same effect as “law”, so in many cases, judicial intervention is easily done. These interventions are often seen in decisions related to social reform and in environmental matters.

- One of the main reasons for judicial incapacity is the number of pending cases. Presently more than 3.5 crore cases are pending in the judiciary. the government is a party in more than half of these cases. Therefore, the judiciary argues that the inefficiency of the government affects the efficiency of the judiciary. One of

the main reasons for judicial inefficiency in India is the acute shortage in the number of judges. The recruitment of judges in the lower courts is done by the Public Service Commission of the respective state. These situations also give rise to conflicts.

- In the democracy of India, the members of the executive (elected executive) are also members of the legislature. And due to the “first past the poll” system, the legislature gives more importance to collectivism, while the decisions of the court are motivated by individual liberty as in many cases (Section 377 of IPC and Section 497 of Criminal Procedure, Sabarimala, etc.) has been seen. This situation also gives rise to conflict between the judiciary and the executive.

- Some rights (eg - right to education, right to a clean environment, right to free legal aid etc.) are described in Part 4 of the Indian Constitution which are not enforceable. But the Supreme Court has defined many of these rights under Article 21 (right to life and personal liberty) which is justiciable. It also reflects judicial activism.

- This conflict becomes more pronounced in high-profile cases. For example, recently, after the bail of the accused in the Lakhimpur

case, the state government of Uttar Pradesh did not consider it appropriate to pursue this matter, then the Supreme Court reprimanded the state government in this regard. It may be noted that the accused in this case is an influential member of the ruling party in the state.

Is this tussle necessary?

- The Constitution of India recognizes the principle of “separation of power”. Article 50 of the Indian Constitution directs the state to separate the judiciary and the executive.
- The Constitution of India gives protection to some functions of the legislature (privilege, exemption from appearing as evidence in civil matters) and some functions of the executive (advice given to the President by the cabinet, anti-defection, and money bills) to the judiciary. Along with this, it also provides substantial autonomy to the judiciary (final interpreter of the constitution, separation of power, salary, and allowances charged on the Consolidated Fund).
- Simultaneously, the constitution prevents autocracy by ensuring the balance of power by giving the right of law-making to the legislature, the right of law enforcement to the executive, and the judiciary to review the law.
- Along with this, it is argued that when the judiciary has been given the task of reviewing the law by the constitution, if it cooperates with the executive and the legislature, then it will not be able to do a proper review.

Way ahead

- Although the Constitution has pro-

vided for the separation of power, it is not in a rigid manner. The executive and the judiciary must cooperate to improve in many matters such as judicial recruitment, language improvement, reduction in pending cases, environmental issues, etc.

- The efficiency of various commissions, tribunals, and quasi-judicial institutions makes it clear that in some special cases the cooperation of the judiciary and the executive can strengthen the institutional system of democracy.
- Simultaneously, it is necessary for the judiciary to be aware of its role while reviewing the laws. In this context, in its judgment given in 2007, the Supreme Court had said, “Judges should know their limits and should not try to run the government.” In this case, the court had directed the judges to exercise judicial restraint...
- Therefore, it is necessary that the courts conduct a judicial review with minimum interference and promote judicial efficiency.

Conclusion

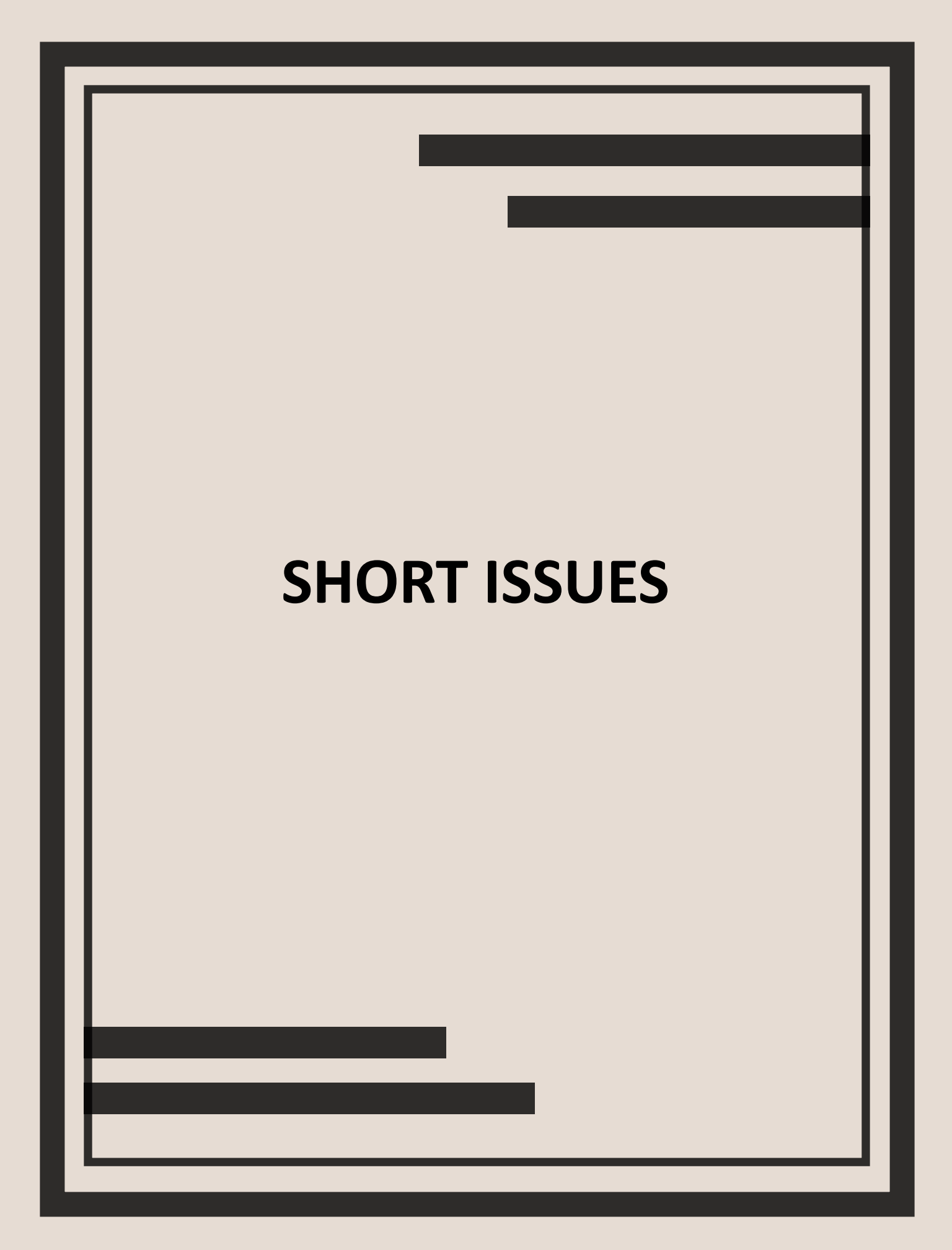
- The executive and the judiciary have to note that in India both of them is the means of establishing good governance and strengthening democracy. Therefore, if the actions of both continue to lead to autocracy and conflict of interest (as was

often seen in the 1970s), it will undermine democracy and promote autocracy and inefficiency.

- The legislature and executive indeed play an important role in law-making and its enforcement, but the procedure adopted by them in law-making is just or not, it is decided by the judiciary. This situation gives rise to conflict, but it is necessary for a healthy democracy. Therefore, both should do the work provided by the constitution with full capacity within their limits.

NOTES





SHORT ISSUES

1 Farmer Distress Index

Why in News?

NABARD is planning to formulate an Index which will be able to measure the different levels of stress being faced by the farmers of India.

What is the Need?

Farmer suicides in India rose to 8,007 in 2015 from 5,650 the previous year – an increase of 41.7 per cent, according to data released by the National Crime Records Bureau this year.

Financial stress is not the only reason why farmers commit suicide in India, there are also certain psychological and behavioural aspects behind farmer suicides, which are generally neglected. The Index is a measure to calculate the multidimensional stresses being faced by the farmers of India. According to a Lancet study, the overwhelming cause of suicide is mental stress, not financial stress. But the underlying mental issues cannot be cured by loan waivers and subsidies.

Problems faced by farmers?

Crop failure, drought, floods and indebtedness are the most frequently cited factors in the suicides of Indian farmers.

The real problem is with the cyclicity of debt. A farmer in India is plagued with multiple distortions that make the farming business risky and unviable. The production cycles make it impossible for farmers not to be indebted, and the income instability makes it difficult for him/her to come out from a cycle of debt, this creates immense psychological pressure on the farmer.

Most Indian farmers also do not have

community or support services for the prevention of suicide.

How will the stress index work?

To address some of the issues, the Punjab Agricultural University (PAU) has teamed up with its counterparts in Telangana and Maharashtra, and also the psychology department of the Punjabi University at Patiala, under which experts would be creating a stress index and psychological resource index (PRI) of farmers.

According to The Indian Express, PAU will create a “stress index” (SI) for farmers and prepare a training module for village-level volunteers to counsel those on the verge of committing suicide

Step 1: Survey will be conducted on 1,000 ‘vulnerable’ farmer households

Step 2: The data collected from these farmers will be used to measure their stress levels and whether they are mentally strong enough to handle it.

Step 3: Distressed farmers would typically exhibit high SI (Stress Index) and low PSI (Psychological Resource Index) a measure of their mental strength and resilience to cope up with stress.

Step 4: Around 200 ‘peer support volunteers (PSVs)’ in Punjab and 100 each in Telangana and Maharashtra will identify distressed farmers within their areas and provide about six months of counselling to prevent them from taking any extreme steps.

Way forward-

Farmer Distress Index is a step in the right direction, as it can help assess the multi-dimensional stresses being

faced by the farmers. Successful use of this index can help address these problems & ultimately, reduce the number of suicide cases among farmers of India.

NOTES

2 Delimitation Commission

Why is news?

The Delimitation Commission set up for J&K (Jammu and Kashmir) has presented its report on May 5 2022.

1. About Delimitation commission?

The Article 82 and Article 170 of the Indian constitution provide for re-adjustment and the division of each state into territorial constituency (Parliamentary and assembly) on basis of 2001 Census, by such authority and in such manner as the parliament may determine

Article 330 & Article 352 provide the same for SC and ST reserved seats

It is a statutory body based upon Delimitation commission Act.

2. Formed How many times

4 times in total-1952, 1965, 1973, and 2002.

3. Current situation

The seats in the assembly and state legislative assemblies have been capped according to 1971 census

Power

- 1) It's report cannot be amended by any assembly.
- 2) It's report cannot be challenged in court as well.

Jammu & Kashmir Case

1) The Jammu & Kashmir Delimitation commission was based upon Jammu & Kashmir state Reorganisation Act 2019.

2) It was set up on March 6, 2020.

3) Gave its initial draft report in January 20 and final report on May 5.

4. Composition

- (1) SC judge retired – Ranjana Prakash Desai
- (2) Chief Election Commissioner,
- (3) Chief Electoral officer
- (4) 5 Member of Parliament as associate members.

5. Major recommendations

- (a) Total seats → 47 in Kashmir (1 added) and 43 in Jammu (6 added)
- (b) Reserved seat → 9 for SC/ST → 6 in Rajouri / Poonch (Highest ST population region)

→ 3 in other Assembly constituencies.

(c) Combined the Rajouri Poonch to Anantnag Lok Sabha constituency.

(d) Srinagar Lok Sabha constituency shifted to Bariam ulla.

Major recommendation

- a) Committee recommended for 2 reserved seats for nomination (at least) of Kashmir Pandits
- b) It also recommended, centre for provision of seat reservation in Jammu Kashmir assembly for Pakistan occupied Kashmir people who shifted Jammu & Kashmir post migration.

Major issues

- (1) Entire country is on freeze till 2026 but delimitation alone
- (2) Based upon the J&K reorganisation Act not on Delimitation Commission Act 200C, which mandated until the fresh census report post 2026 is presented there must be reference made according to 2001 report.
- (3) Not made census as a sole criteria (sec 60(z))(b) of J&K Act
- (4) J&K Act is subjudice itself.
- (5) Initial intent was delimitation

should also be done for North East state but dropped

Fodder for thought

What do we mean by delimitation

It is an exercise that limits on borders the geographical constituencies in a country. on in a province with legislative body.

NOTES

1 70 years of India-Japan friendship

Why in News?

The year 2022 marks the 70th anniversary of the establishment of diplomatic relations between Japan and India.

History of India-Japan Relationship -

Formal relations between Japan and India began in 1952. After the Second World War, instead of signing the multilateral San Francisco Peace Treaty, India opted for concluding a bilateral peace treaty with Japan, considering that honour and equality should be ensured for Japan to rejoin the international community.

This was the cornerstone of the long-standing friendship. But even before the establishment of diplomatic relations, the goodwill between the people of the two countries was deeply rooted through business, academic and cultural exchanges.

In 1951, when India hosted the first Asian Games in New Delhi, it invited Japanese athletes. This was one of the first occasions where the Japanese flag was hoisted after WWII.

After 70 years of multi-layered exchanges, the relationship between two countries grew into a **“Special Strategic and Global Partnership”** & now they have evolved into natural partners.

The partnership is based on a deep respect for each other's contributions in promoting peace, stability and development in Asia and beyond. Both are working together for a “Free and Open Indo-Pacific (FOIP)” and various other global issues.

Both have a long history of people-to-people exchanges that can be traced back to the sixth century. Buddhism was brought to Japan and, in 752, an Indian monk, Bodhisena, performed the consecration ceremony for the Great Buddha Statue at Todai-ji, which is one of the most important temples in Japan.

Goals for the future

The 70th anniversary is based on the theme “building a future for our century.” This is the mantra that will guide the friendship this year.

As democratic countries in Asia, both can cooperate to contribute to global peace and prosperity. Both the countries share political, economic and strategic interests based on the firm foundations of common values and traditions.

India-Japan should continue their efforts to build a rules-based free and open international order. Both can cooperate in fields like security issues including cyber security, outer space and economic security.

Economic relations can be enhanced. For long, Japan has been the largest ODA (Official Development Assistance) donor to India. One of the most recent and ongoing examples of their collaboration is the Mumbai-Ahmedabad High-Speed Rail project. Japan is also one of the largest investors in India. Cultural exchanges including literature, movies, music, sports and academics are essential for our relations, enabling a better understanding. The number of Japanese

learners is increasing in India.

Despite the coronavirus pandemic, the ties continue to flourish. Even though the number of in-person interactions may have been impacted, this in no way does this imply that the ties have weakened. Both can strengthen the partnership even during the pandemic by utilising digital technology as a facilitator of new and innovative methods to stay in touch with each other.

Way Forward-

Both the countries can create their future together and propel themselves towards the 100th-anniversary landmark and beyond. The future offers enormous possibilities for this partnership.

NOTES

2

India's Position on the World Press Freedom Index

Why in News?

India's ranking in the 2022 World Press Freedom Index has fallen to 150 out of 180 countries, according to the latest report released by Reporters Without Borders (RSF).

Findings of the report-

The report describes India as "one of the world's most dangerous countries for the media. In last year's report, India was ranked 142. The top three positions for countries with the highest press freedom were taken by the Nordic trio of Norway (a score of 92.65), Denmark (90.27) and Sweden (88.84). Moldova (40th) and Bulgaria (91st) have shown drastic improvements in press freedom owing to changes in government, it has classified the situation in 28 countries including Russia (155) and Belarus (153), as "very bad". The world's 10 worst countries for press freedom include Myanmar (176th), China (175), Turkmenistan (177th), Iran (178th), Eritrea (179th) and North Korea (180th).

The report has highlighted a two-fold increase in polarisation; media polarisation is also fuelling divisions within countries, as well as polarisation between countries at the international level. It notes that within democratic societies, divisions are growing due to the spread of "opinion media" and the rise of "disinformation circuits" on social media platforms.

What is RSF and what's the objective of this Index?

RSF is an international NGO whose aim is to defend and promote media freedom. Headquartered in Paris, it has consultative status with the United Nations.

The objective of the World Press Freedom Index, which it releases every year, is to compare the level of press freedom enjoyed by journalists and media in 180 countries and territories, in the previous calendar year.

What is the methodology used by RSF to assess and rank countries?

Countries are ranked after being assigned a score ranging from 0 to 100, with 100 representing the highest possible level of press freedom and 0 the worst.

Countries are evaluated on five contextual indicators: political context, legal framework, economic context, socio-cultural context, and safety.

What does the Index say about India?

The report states that in India the violence against journalists, the politically partisan media and the concentration of media ownership all demonstrate that press freedom is in crisis. The report notes that journalists are exposed to all kinds of physical violence including police violence, ambushes by political activists, and deadly reprisals by criminal groups or corrupt local officials.

Political context: Originally a product of the anti-colonial movement, the Indian press used to be seen as fairly progressive, but things changed radically in the mid-2010s when ownership of media by political leaders increased.

Legal Context: Indian law is protective in theory but charges of defamation, sedition, contempt of court and endangering national security are

increasingly used against journalists critical of the government.

Economic context: Media outlets largely depend on advertising contracts from local and regional governments.

Socio-Cultural context: The enormous diversity of Indian society is barely reflected in the mainstream media.

NOTES

ENVIRONMENT

1

Govt offer 5-Year PLI for Electrolyzer Manufacturers

Why in News?

India plans to introduce a production-linked incentive (PLI) scheme to encourage the manufacturing of electrolyzers used to extract hydrogen from water.

Context:

- Hydrogen and Ammonia are envisaged to be the future fuels to replace fossil fuels.
- Production of these fuels by using power from renewable energy, termed as green hydrogen and green ammonia, is one of the major requirements towards environmentally sustainable energy security of the nation.
- The initiative will promote Renewable Energy (RE) generation as RE will be the basic ingredient in making green hydrogen.
- This in turn will help in meeting the international commitments for clean energy.

Importance of the Electrolyzers:

- A favourable policy to encourage the manufacturing of electrolyzers is crucial for India to bring down the cost of green hydrogen
- Various Private players have already announced mega plans to make India a green hydrogen hub.
- With the plan to boost domestic manufacturing of electrolyzers, the government wants to make India a hub for green hydrogen produced by splitting water into hydrogen and oxygen in an electrolyzer using power from renewable sources.
- The government aims to reduce the cost of green hydrogen to as low as \$1 per kg by 2030.

Benefits of Domestic Electrolyzer Manufacturing:

- The plan to boost local electrolyzer manufacturing also comes on the back of surging global demand and concerns over adequate supplies of electrolyzers
- The European Union plans to quadruple its green hydrogen supply by 2030 to reduce dependence on Russian gas.
- The PLI scheme for electrolyzers and rules regulating offtake of green hydrogen would be key for the adoption of green hydrogen and the growth of the sector.

National Hydrogen Mission ?

The Mission aims to aid the government in meeting its climate targets and making India a green hydrogen hub. This will help in meeting the target of production of 5 million tonnes of Green hydrogen by 2030 and the related development of renewable energy capacity.

Features of Mission :

- The Green Hydrogen / Ammonia manufacturer can bank his unconsumed renewable power, up to 30 days, with distribution company and take it back when required.
- Distribution licensees can also procure and supply Renewable Energy to the manufacturers of Green Hydrogen / Green Ammonia in their States at concessional prices which will only include the cost of procurement, wheeling charges and a small margin as determined by the State Commission.
- Waiver of inter-state transmission

charges for a period of 25 years will be allowed to the manufacturers of Green Hydrogen and Green Ammonia for the projects commissioned before 30th June 2025.

- The manufacturers of Green Hydrogen / Ammonia and the renewable energy plant shall be given connectivity to the grid on priority basis to avoid any procedural delays.
- The benefit of Renewable Purchase Obligation (RPO) will be granted as incentive to the hydrogen/Ammonia manufacturer and the Distribution licensee for consumption of renewable power.
- To ensure ease of doing business a single portal for carrying out all the activities including statutory clearances in a time bound manner will be set up by MNRE.

Conclusion:

- This would be the 14th PLI for the government as it pursues its vision to make the country self-reliant and a global manufacturing hub. Recent PLI schemes in which applicants have been chosen this year include those for automobile and auto components, advanced chemistry cell (ACC) battery storage and textiles. The implementation of this Policy will provide clean fuel to the common people of the country. This will reduce dependence on fossil fuel and also reduce crude oil imports.

2 Global Study on Birds

Why in News?

The State of the World's Birds, an annual review of environmental resources published on May 5 has revealed that the population of 48% of the 10,994 surviving species of birds is declining.

Key findings of the study?

- The continued growth of human populations and of per capita rates of consumption lead directly to conversion and degradation of primary natural habitats and consequent loss of biodiversity.
- The study found that 5,245 or about 48% of the existing bird species worldwide are known or suspected to be undergoing population declines.
- While 4,295 or 39% of the species have stable trends, about 7% or 778 species have increasing population trends.
- The study draws from BirdLife International's latest assessment of all birds for the International Union for Conservation of Nature's Red List that shows 1,481 or 13.5% species are currently threatened with global extinction.
- These include 798 species classified as vulnerable, 460 as endangered and 223 as critically endangered while 52 species were considered to be data deficient.
- The more threatened bird species (86.4%) are found in tropical than in temperate latitudes (31.7%), with hotspots for threatened species concentrated in the tropical Andes, south-east Brazil, eastern Himalayas, eastern Madagascar, and Southeast Asian islands.

What is the importance of birds to

ecosystems?

Birds contribute toward many ecosystem services that either directly or indirectly benefit humanity. The functional role of birds within ecosystem include as pollinators, seed-dispersers, ecosystem engineers, scavengers and predators.

What are the threats contributing to avian biodiversity loss?

- Land cover and land-use changes
- The continued growth of human populations and of per capita rates of consumption.
- Habitat fragmentation and degradation: especially in the tropics
- Global tree cover changes
- Hunting and trapping: 11 to 36 million birds estimated to be killed or taken illegally in the Mediterranean region alone
- Impact of invasive alien species and disease: 971 alien bird species introduced accidentally or deliberately to 230 countries over the centuries have affected the native species
- Infrastructure & energy demands
- Pollution
- Agrochemical and pharmaceutical
- Global trade teleconnections.
- Climate change

Way Forward-

Birds are truly a global taxon, with one or more species occupying all habitats across the earth's terrestrial surface. Birds not only maintain biodiversity but also support human endeavours such as sustainable agriculture & aiding other animals to multiply. Wild birds and products derived from them

food (meat, eggs). The cultural role of birds is perhaps more important than any other taxonomic group according to the study. Beyond its symbolic and artistic values, bird watching is a global pastime practised by millions of people. Hence conservation of Birds is of utmost importance having economic, cultural, environmental, health & tourism related impacts on human life.

NOTES

1 ISRO's Shukrayaan mission

The Indian Space Research Organization (ISRO) is going to launch a mission to Venus in December 2024 in collaboration with the US and other countries. ISRO has not officially announced the timeline of this mission. For a long time, scientists have believed that Venus and Earth are twin planets and that Venus also once had plenty of water like Earth. With this, all such resources were present on Venus so that life could flourish there. Over time, all the water on Venus was lost, now the planet Venus is covered with clouds of sulfuric acid and its atmosphere is extremely toxic and corrosive.

The Indian Space Research Organization (ISRO) is planning to launch a space mission in December 2024. The purpose of this mission is to study the atmosphere of Venus and the elements present under its surface. For this purpose, experiments will be done at many points through the mission, including examining the surface of Ve-

nus, detecting active volcanoes, gathering information about lava flows, examining the layers of the lower surface, the outer structure and shape of the planet Venus and the study of the internal structure, examining the atmosphere of the planet Venus and finding out the relation of Venus with the solar winds, etc.

The High Resolution Synthetic Aperture Radar will be used in the vehicle to study the surface of Venus. It will test the surface of Venus, despite the clouds around the planet.

This mission will be launched in December 2024 because then Earth and Venus will come in a straight line. If the launch takes place at this time, then using very little propellant, the vehicle can be installed in the orbit of Venus. If this launch does not happen in December 2024, then such favourable astronomical conditions will be created in the year 2031.

So far only America, Russia, European Space Agency and Japan have been able to launch Venus mission and the number of all these missions is about 46. Some of these spacecraft reached Venus, some reached its orbit. These missions can be divided into 3 types-
1) Flyby means the spacecraft passes near the planet.

2) Lander mission i.e. in which the instrument is landed on the surface of the planet from the spacecraft.

3) Orbiter mission i.e. in which the spacecraft keeps revolving in the orbit of the concerned planet.

This Venus mission of India will be the orbiter mission.

The sub-surface of Venus has not been observed by any country so far. In September 2020, scientists claimed to have found phosphine gas on Venus. Micro-organisms also make this gas. In such a situation, the Indian mission can play an important role in confirming life outside the Earth.

2 Electrochemical method of Carbon Capture

Context:

- Prof Bryan McCloskey of Lawrence Berkeley National Laboratory, California, has come up with a potentially cheaper approach to carbon sequestration. His method uses electrochemistry to capture carbon dioxide.
- It is a good method of sucking out carbon from atmospheric carbon dioxide i.e. direct air capture, which is being tried in some places.

Electrochemical Sequestration:

- Electrochemical method uses electrochemistry to capture carbon dioxide. Electrochemistry broadly involves atoms giving or receiving electrons. This science is the basis of all batteries and fuel cells. This process gets carbon dioxide to react with hydroxide ions to form bicarbonates. It then uses electrochemical methods to separate carbon dioxide and the hydroxide ions, so that the gas

can be put away and the hydroxide reused.

- In the electrochemical cell, two reactions occur at each of its electrodes. At one electrode, bicarbonate is oxidised to form a pressurised stream of carbon dioxide, which can be sequestered. At the other electrode, hydrogen gas is generated, which consumes protons to regenerate the alkaline solution. The hydrogen production is certainly a bonus

of our alkaline regeneration scheme. Thus, the process produces a stream of concentrated carbon dioxide and another stream of hydrogen.

What is Carbon Sequestration?

- Carbon dioxide is the most commonly produced greenhouse gas. Carbon sequestration is the process of capturing and storing atmospheric carbon dioxide. It is a method of reducing the amount of carbon dioxide in the atmosphere with the goal of reducing global climate change.

Types of Carbon Sequestration:

- **Biological**

- o Biological carbon sequestration is natural storage of carbon dioxide. This includes storage in plants (naturally done through photosynthesis), trees, soil, and ocean carbon sequestration. The roots of plants and trees are excellent at carbon sequestration, storing vast amounts of carbon in there as well as in the leafy growth.

- **Geological**

- o Geological carbon sequestration takes place when CO₂ is injected into porous geological rock formations. This type of carbon sequestration is currently being implemented in industrial production. Industries, such as steel, energy, and natural gas production, send carbon dioxide runoff deep into the earth, trapping it, so it doesn't spill into the atmosphere.

- **Technological**

- o Technological carbon sequestration is an attempt to create a useful by-product from excess carbon dioxide.
- o One group of scientists is perfect-

ing a method that changes CO₂ into methane and water. Methane can then be used as fuel for electricity or to power vehicles.

- o Scientists have explored the possibility of creating a raw material from CO₂ and have created a substance called Graphene. Graphene's use is still limited, but it is already used in devices such as smartphone screens.

- o Other technological carbon sequestration methods are still in a nascent stage. Processes such as direct air capture can capture CO₂ emissions in the atmosphere but is currently an uneconomical choice to use on a larger scale.

India and Carbon Sequestration:

- National Programme on CO₂ Storage Research by Department of Science and Technology
- India is part of the accelerating CCS technologies (ACT) initiative.
- ACT is an international initiative of 16 countries to facilitate the emergence of CCUS via transnational funding of projects aimed at accelerating and maturing CCUS technology through targeted innovation and research activities.
- 'Industry Charter' for near-zero emissions by 2050 was agreed to by six Indian companies that will explore different decarbonisation measures including carbon sequestration.

Way Forward:

Carbon Sequestration is a viable option for global leaders to achieve Net zero-emission by 2050 as asserted in the IPCC Report, to protect the planet from rising temperature greater than 2°C. The need is serious global cooperation and coordination for

feasible technology development and affordable access to all, based on principles of Equity and Climate Justice.

NOTES

ECONOMY

1

Five Ways for Small Firms to Forge Robust Supply Chains

Just like big organizations, Micro, Small and Medium Enterprises (MSMEs) also need powerful and robust supply chains to operate, grow and transform their businesses successfully. An efficient supply chain is pivotal for better inventory turnaround, optimization of business resources and enhancing the speed and agility of the overall system. It is also of critical importance in serving customers in the best possible way and building long-term relationships with them.

What is meant by Supply Chain?

Supply chains are a complex ecosystem comprising people, processes, technologies & information connecting the producer & buyer through a complex network of entities and resources. For the supply chain to function smoothly, these elements need to work in tandem to ensure efficiency.

Ways in Which Indian MSMEs can Strengthen Their Supply Chains :

1. Lay Down Key Performance Indicators:

- o The initial step involves specifying appropriate key performance indicators (KPI). In any supply chain, a host of KPIs can be identified, such as costs, inventory turnaround time, speed, customer satisfaction, the overall rate of complaints, etc.
- o Subject to the business and its long-term strategy, an MSME should specify KPIs to be worked upon.
- o In this exercise, it is important to give each KPI a weightage score. What might be very important for one business might not be essential to another.

2. Use an Integrated Platform:

- o Even in an MSME, multiple functions operate simultaneously. It is thus important to develop a unified system that can integrate numerous individual functions such as production, other business operations, marketing and logistics under a single dashboard.
- o A unified system will ensure a real-time and seamless flow of data across functions and help the business leadership get a complete view, rather than having to go silo by silo.
- o The greater its transparency, the better the synchronization of all elements in the chain.

3. Use Predictive Analytics for Demand:

- o Analysing consumer preferences and forecasting demand accurately is paramount for supply chain efficiency, as it aids better planning.
- o Scrutinizing past trends can reveal a lot about the future and improve decision-making.
- o Demand forecasting has supported superior inventory management of raw materials as well as finished products.
- o This has enabled us to avoid both stock-outs and overstocking, thereby optimizing related costs.
- o Also, it helps detect any shift in consumer behaviour.

4. Forge Partnerships that are Mutually Beneficial:

- o Identifying reliable partners, including logistic resources and raw material suppliers, can be very helpful in the longer run.

- o Having the right partners and engaging them in open and frank communication can help lower business uncertainty and strengthen one's supply chain manifold.

- o While dealing with partners, it is important to understand their concerns as well, so that a mutually beneficial and sustainable relationship can be forged.

5. Address the Human Resource Challenge:

- o No matter how small the set-up, it is always prudent to have a specialized supply chain team in place.
- o This would not just help in operational compatibility, but will also be instrumental in scaling up the business in time to come.
- o Having a dedicated team has helped meet the consumer requirements at both the institutional and individual level.
- o It has also helped streamline the manufacturing.

Conclusion:

At a time when businesses across shapes and sizes have suffered the whiplash of covid induced disruptions, the role of supply chain efficiency is all the more critical. In such challenging times, in order to ensure seamless operations and mitigate assorted risks, it is very important to take care of one's supply chains from end to end.

2**Difference between Crypto & CBDCs****Why in News?**

Recently, RBI had announced that it is planning to launch a Central Bank Digital Currency (CBDC).

What is a Cryptocurrency?

A cryptocurrency is a digital or virtual currency that is secured by cryptography, which makes it nearly impossible to counterfeit or double-spend. Many cryptocurrencies are decentralized networks based on blockchain technology. A defining feature of cryptocurrencies is that they are generally not issued by any central authority, rendering them theoretically immune to government interference or manipulation.

What is Central Bank Digital Currency (CBDC)?

Central bank digital currencies are digital tokens, similar to cryptocurrency, issued by a central bank. They are pegged to the value of that country's fiat currency, leaving scope for government interference.

What is the difference between Crypto & CBDC?

The central bank must note that a Central Bank Digital Currency (CBDC) can only be a fiat currency and not a crypto, as CBDC will act as a token of exchange with state backing hence it cannot act as a crypto.

Cryptos are a string of numbers in a computer programme with no state backing but their acceptability to the well-off enables them to act as money. So, cryptos acquire value and can be transacted via the net. This enables them to function as money.

The different degrees of difficulties underlying cryptos relate to the problem of 'double spending'. Fiat currency has the property that once spent, it cannot be spent again except through forgery, because it is no more with the spender. But, software on a computer can be used repeatedly.

Blockchain enables decentralisation. That is, everyone on the crypto platform has a say. But, central banks would not want that. Further, they would want a fiat currency like CBDC to be exclusively issued and controlled by them. But, theoretically everyone can 'mine' and create crypto. Hence, CBDC is not a truly decentralised digital asset.

So, CBDCs at present cannot be a substitute for cryptos that will soon begin to be used as money. This will impact the functioning of central banks and commercial banks.

Way Forward

A centralised CBDC will require the RBI to validate each transaction, something it does not do presently. Once a currency note is issued, the RBI does not keep track of its use in transactions. Keeping track will be very complex which could make a crypto such as the CBDC unusable unless new secure protocols are designed.

So, CBDCs at present cannot be a substitute for cryptos, that will soon begin to be used as money. This will impact the functioning of central banks and commercial banks. Further, a ban on cryptos requires glob-

al coordination, which seems unlikely. Kristalina Georgieva, International Monetary Fund Managing Director has said, "The history of money is entering a new chapter". The RBI needs to heed this caution and not be defensive.

NOTES

1. ISRO to track space debris with the help of NETRA project



The Indian Space Research Organization (ISRO) is planning to augment the space debris tracking capability with the help of Network for space object Tracking and Analysis (NETRA). Under this project, a space debris tracking radar with a range of 1,500 km and an optical telescope will be installed. The specialty of the radar is that it is capable of detecting objects more than 10 cm in size. This radar is being indigenously designed and manufactured. ISRO will deploy two such radars at a distance of 1000 km. In the year 2021, ISRO monitored around 3,148 events when the distance between other objects in geostationary orbit and Indian satellites was less than 5 km. The maximum number of objects that could threaten Indian satellites are fragments of Chinese satellites Fengyun-1C and Kosmos-Iridium satellites. Space debris is fragments of space objects, fragments of dead satellites, which rotate at an average speed of 27,000 km per hour.

2. Uttar Pradesh government launched 'School Chalo Abhiyan'

The Uttar Pradesh government has started the School Chalo campaign for 100% enrollment in primary and upper primary schools. Chief Minister Yogi Adityanath started the campaign from Shravasti district. Shravasti district is one of the most illiterate districts of Uttar Pradesh state. Uniforms, shoes and socks will be provided to the students under the campaign. In order to connect the public representatives with the 'School Chalo Abhiyan', the Chief Minister has urged each MLA to adopt a school. He said that the government has given a new look to the schools under Operation Kayakalp.



Literacy rate of Uttar Pradesh :-

The male literacy rate in Uttar Pradesh is 79.24 percent and the female literacy rate is 59.26 percent while the overall literacy rate in Uttar Pradesh is 69.72%. The highest literacy rate is recorded in Gautam Buddha Nagar district while the lowest is in Shravasti district.

3. India's GDP to grow at the rate of 7.5% and 8% respectively in FY 2022 and 2023



The Asian Development Bank (ADB) has projected in the Asian Development Outlook (ADO) 2022 that India's GDP will grow at 7.5% in 2022 and 8% in 2023. At the same time, ADB said in its same report that the growth rate in South Asia (in 2022) will decrease to 7% and will increase to 7.4% in 2023. Taking an estimate on the GDP of the whole of Asia in the report, it has been said that the economy of Asia will grow at the rate of 5.2% in 2022 and 5.3% in 2023.

Asian Development Outlook (ADO) :-

Published annually in March/April, this report is released by the Asian Development Bank (ADB). This report covers most of the countries in Asia. An update for ADO is published in September. Whereas ADO's Brief Supplements are published in July and December. At the same time, the international outlook is assessed by reports like "Global Economic Prospects" by the World Bank Group and "World Economic Outlook" by the International Monetary Fund.

4. Exercise Varun concluded between Indian and French navies



The 20th edition of the bilateral naval exercise 'Varuna' between the Indian and French navies was conducted in the Arabian Sea from 30 March to 3 April. Ships, submarines, maritime patrol aircraft, fighter aircraft and helicopters participated in the exercise from both the navies. Bilateral naval exercise was started between the two countries in 1993. Further, the exercise was renamed as 'Varuna' in 2001 and has since become an important part of the strategic bilateral relationship between India and France.

5. Bilateral trade between India and China increased by 43.41%

According to official data, bilateral trade between India and China reached USD 125.62 billion in the last fiscal, an increase of 43.41% from earlier. In this sequence, exports from India to China have increased by 34.28% reaching US\$ 28.03 billion in value terms. While India's imports from China increased by 46.14 per cent to US\$ 97.59 billion. The trade deficit between India and China has increased by 51.53%. India was China's 14th largest trading partner in 2021. India mainly exports iron ore, diamonds, aluminum and refined copper cathodes to China. India was the second largest diamond exporter to China. The export of electrical machinery and equipment from China to India registered a growth of 36.77 per cent. India was the largest exporter for Chinese organic chemicals in 2021.



6. IONS Maritime Exercise (IMEX) 2022 Concludes



The first edition of the Indian Ocean Naval Symposium (IONS) Maritime Exercise (IMEX) was held in the Arabian Sea from 26 to 30 March 22. The main objective of the exercise is to enhance reciprocity in Humanitarian Assistance and Disaster Relief (HADR) operations. Out of the 25 member IONS, 15 members participated in it. Warships, aircraft and helicopters from the navies of Bangladesh, France, India and Iran have participated in the exercise. The exercise is important for cooperation between the navies of the member countries and for collectively dealing with natural disasters in the region. The port phase of IMEX-22 was conducted at Mormugao Port, Goa.

Indian Ocean Naval Symposium (IONS) in brief:-

It was established in 2007. It is a forum to discuss regional maritime issues and improve maritime security cooperation in the Indian Ocean region. Its member countries are the following:

Bangladesh, India, Maldives, Pakistan, Seychelles, Sri Lanka, United Kingdom (British Indian Ocean Territory), Iran, Oman, Saudi Arabia, United Arab Emirates, France (Reunion), Kenya, Mauritius, Mozambique, South Africa, Tanzania, Australia, Indonesia, Malaysia, Myanmar, Singapore, Thailand and Timor-Leste.

7. Increase in population of one-horned rhinoceros in Kaziranga National Park.

According to the new census in Kaziranga National Park, the population of one-horned rhinoceros has reached 2,613 as against 2,413 recorded in the last census. The latest figures have 750 adult male rhinos and 903 adult females. The census also recorded 279 juveniles (1 to 3 years) and 146 calves (0 to 1). Currently, the density of rhinos in Kaziranga National Park is 0.2 per square kilometer. Drones were used for the first time in this calculation. It has been told in a report that the population of rhinoceros has also increased in Orang National Park and Pobitora Wildlife Sanctuary. The one-horned rhinoceros is listed as vulnerable on the IUCN Red List.



Kaziranga National Park :-

It is situated in the flood plains of Brahmaputra valley in Assam. It has the largest population of one horned rhinoceros. It was declared a national park in 1974. It was included in the UNESCO World Heritage List in 1985.

8. Two Geological Heritage Sites Identified in the Indian Himalayan Region



The Shivalik Fossil Park and the stromatolite containing limestone of the Dolomite/ Buxa Formation have been identified as geological heritage sites in the Indian Himalayan region. Geological Survey of India (GSI) declares Geo-heritage sites/National Geological Monuments for better protection and maintenance. Geological heritage sites are places where geologic features or landscapes have played a significant role in cultural or historical events. There are total 34 geological heritage sites in India.

Shivalik Fossil Park :-

It is located in the Sirmur district of Himachal Pradesh. It houses a collection of pre-historic vertebrate fossils and skeletons found from the Upper and Middle Shivalik regions. It is the largest fossil park in Asia. It was established in 1974 by the Geological Survey of India in collaboration with the Government of Himachal Pradesh.

Stromatolite containing dolomite / Limestone of Baksa Formation :-

The site is located near Mamle in South Sikkim district. The site is one of the rare examples of early life in the Sikkim Himalayas. The geo-heritage site exposes the limestone of the Buxa Formation of the Proterozoic era.

9. Faster system introduced for faster transmission of court orders

Fast and Secure Transmission of Electronic Records (FASTER) software has been launched for fast and secure transmission of court orders. The Supreme Court and High Courts can now inform the authorities about interim orders, stay orders, bail orders, etc., with the help of the FASTER system. All the nodal officers are linked through a unique Judicial Communication Network (JCN). With the help of this system, courts can send e-certified copies of bail orders, stay orders, interim orders and proceedings through secure electronic communication to duty officers in jails. This system has been developed by the Registry in collaboration with National Informatics Centre. A FASTER Cell has also been set up in the Registry of the Supreme Court to oversee the system. The FASTER Cell will disseminate the digitally signed record of the bail proceedings or orders to the Nodal Officers.



10. India's Falguni Shah and Ricky Kej Receive Grammy Award



Two Indian musicians Ricky Kej and Falguni Shah are among the winners of the 64th Annual Grammy Awards. Kej won his second Grammy Award for the album "Divine Tides" in the Best New Age Album category. Prior to this, Kej received his first Grammy in 2015 for "Winds of Samsara". Falguni Shah won the award in the Best Children's Music Album category for the album "A Colorful World". The Grammy Awards are an award presented by the Recording Academy to recognize achievement in the music industry.

The following are the other winners of the 64th Grammy Awards:

- o **Album of the Year:** 'We Are' by Jon Batiste
- o **Record of the Year:** "Leave the Door Open" by Bruno Mars and Anderson Pak
- o **Song of the Year:** "Leave the Door Open," Silk Sonic (Brandon Anderson, Christopher Brody Brown, Durnst Emil II and Bruno Mars)
- o **Best Music Video:** "Freedom" by Jon Batiste
- o **Best Music Film:** "Summer of Soul"
- o **Best R&B Album:** "Hex Tales," Jazmine Sullivan
- o **Best Country Song:** "Cold" by Chris Stapleton

11. Andhra Pradesh tops in fruit production

Andhra Pradesh has once again topped in fruit production in the financial year 2021-2022. It is followed by Maharashtra, Uttar Pradesh, Karnataka and Gujarat respectively. Uttar Pradesh has regained its position as the top vegetable producing state after two years in 2021-22. West Bengal ranks second after Uttar Pradesh in the list of vegetable producing states. It is followed by Madhya Pradesh, Bihar and Maharashtra respectively. India's total horticulture production in the financial year 2021-2022 has decreased by 0.4% as compared to the previous year. The total production may be 333.25 million tonnes in the financial year 2021-2022. The government had launched "Horticulture Integrated Development Mission" in the year 2014-15 with an aim to increase horticulture production.



Top Five fruit producer states(2021-22)

Andhra Pradesh
Maharashtra
Uttar Pradesh
Karnataka
Gujarat

Top Five vegetable producer states (2021-22)

Uttar Pradesh
West Bengal
Madhya Pradesh
Bihar
Maharashtra

Current Affairs at a Glance

- The third hottest place in the world has been recorded in Chandrapur, Maharashtra.

Why Chandrapur was in news: - On March 29, 2022, the first forest fire was recorded in Chandrapur district. The fire was registered in the area of Irai Dam. The Irai Dam is located on the Irai River near Chandrapur and Tadoba Andhari Tiger Reserves in Maharashtra. Tadoba Andhari Tiger Reserve is the oldest and largest national park in Maharashtra.

- Mahesh Verma has been appointed as the new chairman of the National Accreditation Board for Hospitals and Healthcare Providers (NABH).

NABH in short :- It was established to conduct accreditation program for healthcare organizations. It is a constituent board of the Quality Council of India.

- Mumbai-based journalist Aarefa Johari has been selected for the Chameli Devi Jain Award for the year 2021.

Chameli Devi Jain Award in Brief: Established in 1982, this award is given in the memory of freedom fighter and community reformer Chameli Devi Jain. It is a major award given to Indian women media persons who have reported on topics such as social development, politics, equality, gender justice, health, war and conflict, and consumer values.

- The world's largest electric cruise ship '**Yangtze River Three Gorges 1**' was launched in China. It is 100 meters long, 16.3 meters wide and has a seating capacity of 1,300 passengers. On a single charge, it can cover a distance of 100 km.

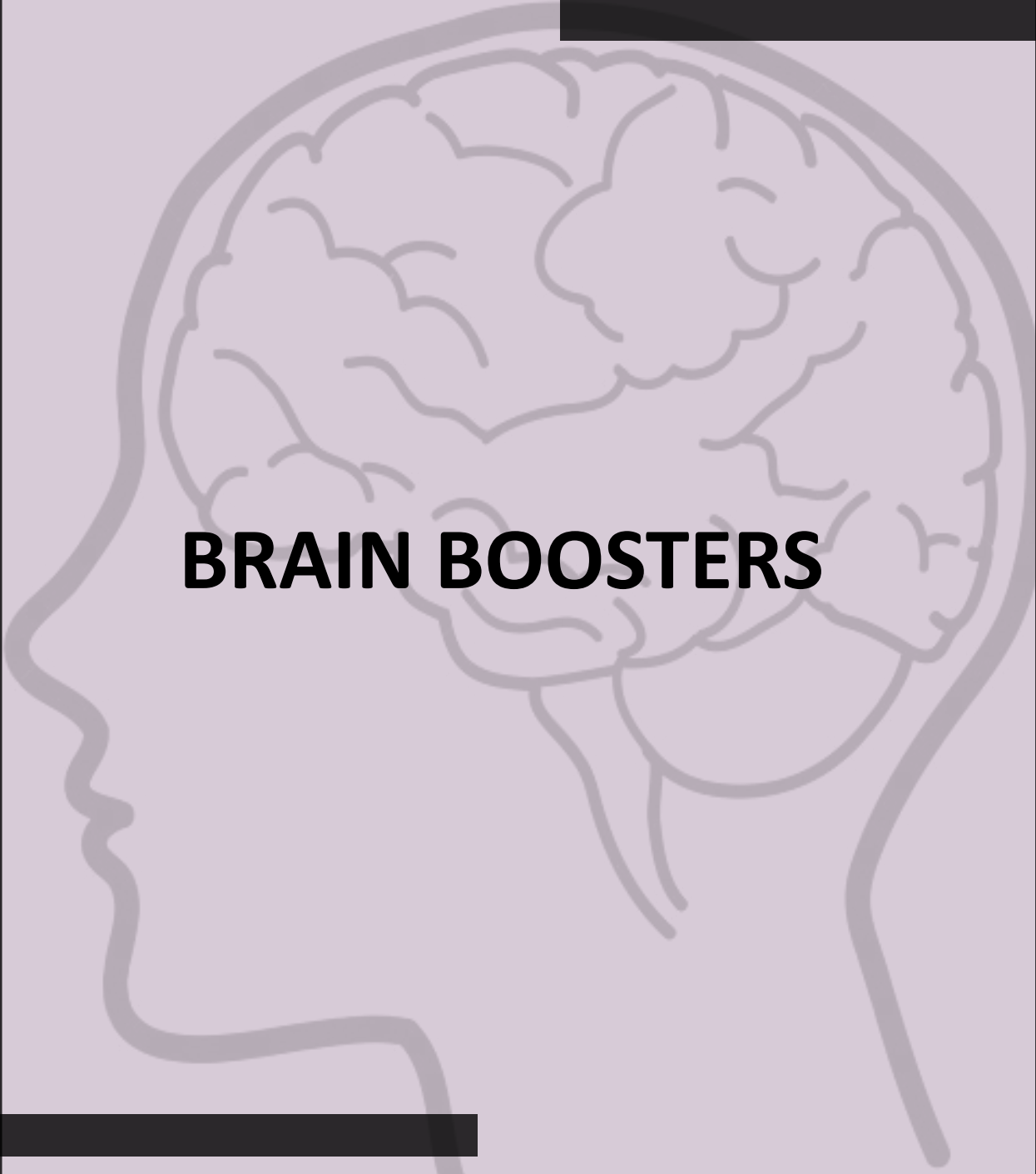
- Astronomers have discovered an exoplanet 17,000 light-years away from Earth, which is almost identical to Jupiter. This exoplanet has been named **K2-2016-BLG-0005Lb**. Astronomers used Albert Einstein's theory of relativity and gravitational microlensing techniques to search for a planet similar to Jupiter, as well as data collected from NASA's Kepler satellite telescope.

- The 9th edition of India-Kyrgyzstan Joint Special Forces Exercise "Khanjar" concluded at Special Forces Training School, Bakloh, Himachal Pradesh.

- Professor Ramdarash Mishra will be given Saraswati Samman for 2021 for his collection of poems 'Main To Yahan Hoon'.

Saraswati Samman in brief :- Saraswati Samman was started by KK Birla Foundation in 1991. It is given annually for prose or poetry in any of the 22 languages in the Eighth Schedule of the Indian Constitution. This award is given for work published within the last 10 years. The Saraswati Samman was first given to Harivansh Rai Bachchan.

- SpaceX and Tesla CEO Elon Musk has topped the Forbes rich list of 2022. Mukesh Ambani of India is the 10th richest person in the world in this list. Mukesh Ambani, Gautam Adani, Shiv Nadar, Cyrus Poonawalla and Radhakishan Damani are the top 5 Indians in the 36th rich list of Forbes. Savitri Jindal is India's richest woman in the Forbes' list of billionaires in 2022 while this year Francois Bettencourt Meyers has been listed as the world's richest woman.



BRAIN BOOSTERS

5. Types of Post-Offer Defence Mechanisms

Post-offer defence mechanisms are employed when a target company receives a bid for a hostile takeover. The examples of post-offer defence mechanisms are:

• Greenmail defence

Greenmail defence refers to the target company buying back shares of its own stock

from a takeover bidder who has already acquired a substantial number of shares in pursuit of a hostile takeover. The term "greenmail" is derived from "greenbacks" (dollars) and "black-mail".

• Crown jewel defence

The crown jewel defence strategy involves selling the most valuable assets of a target company to a third party or spinning off the assets into a separate entity. The main goal of the crown jewel defence strategy is to make the target company less attractive to the corporate raider.

• Pac-Man defence

The Pac-Man defence occurs when a target company attempts to acquire its potential acquirer when a takeover bid has already been received. Just as the acquirer is attempting to buy up a controlling amount of shares in the target company, the target likewise begins buying up shares of the acquirer in an attempt to obtain a controlling interest in the acquirer.

• White knight defence

The white knight defence is a strategy that involves the acquisition of a target company by its strategic partner, called a white knight, as it is friendly to the target company.

company's top management staff in case of termination of their employment.

• Supermajority provisions

A supermajority provision is an amendment in the corporate charter stating that a merger or acquisition of the company can only be approved by the board if a very large percentage of its shareholders (typically 70% to 90%) vote in favor of it.



Defence mechanisms against hostile takeover

1. Why In news

Elon Musk reached an agreement to buy Twitter for roughly \$44 billion. The sale was a dramatic shift for the board, which had originally maneuvered to block Mr. Musk from taking Twitter.

2. About hostile takeover

A hostile takeover is a type of acquisition in which a bidder takes over a target company without the consent, and against the wishes, of the management or board of directors of the target. Hostile takeovers are executed through the acquisition of a controlling interest in the target company by a bidder.

3. About Defense Mechanism

- In M&A transactions, a defense mechanism is any set of procedures that are employed by a target company to prevent a hostile takeover.
- Generally, defense mechanisms can be divided into two broad categories:
 - Pre-offer defense mechanisms
 - Post-offer defense mechanisms

4. Types of Pre-Offer Defense Mechanisms

The pre-offer defense is a preemptive strategy. The pre-offer defense mechanisms include the following strategies:

• Poison pill

The poison pill defense includes the dilution of shares of the target company in order to make it more difficult and

expensive for a potential acquirer to obtain a controlling interest in the target.

• Poison put

The poison put strategy involves the target company issuing bonds that can be redeemed before their maturity date in the event of a hostile takeover of the company.

• Golden parachutes

Golden parachutes refer to benefits, bonuses, or severance pay due to the

4. Is hydrogen already being used as a fuel?

- There are already cars that run on hydrogen fuel cells.
- In Japan there are 96 public hydrogen refuelling stations.
- Germany has 80 hydrogen stations and the United States is third with 42 stations.

5. The speed-breakers in hydrogen adoption

- For hydrogen to be a viable alternative to methane, it has to be produced at scale, economically and the current infrastructure needs to be adapted.

6. India's plans

- According to power ministry, India plans to manufacture five million tonnes of green hydrogen per annum by 2030.
- India is aiming to meet its climate targets and become a production and export hub for the fuel.

hydrogen production.

- Grey hydrogen is created from natural gas, or methane, using steam methane reformation but without capturing the greenhouse gases made in the process.

D. Black and brown hydrogen

- In this black coal or lignite (brown coal) is used in the hydrogen-making process. It is the most environmentally damaging.

E. Pink hydrogen

- Pink hydrogen is generated through electrolysis powered by nuclear energy.

F. Turquoise hydrogen

- Turquoise hydrogen is made using a process called methane pyrolysis to produce hydrogen and solid carbon.

G. Yellow hydrogen

- Yellow hydrogen is a relatively new phrase for hydrogen made through electrolysis using solar power.

H. White hydrogen

- White hydrogen is a naturally-occurring geological hydrogen found in underground deposits and created through fracking.
- There are no strategies to exploit this hydrogen at present.

Hydrogen

to electrolyse water.

- Electrolysers use an electrochemical reaction to split water into its components of hydrogen and oxygen, emitting zero-carbon dioxide in the process.

B. Blue hydrogen

- Blue hydrogen is produced mainly from natural gas, using a process called steam reforming.
- The output is hydrogen – but also carbon dioxide as a by-product.
- Carbon capture and storage (CCS) is essential to trap and store this carbon.
- Blue hydrogen is also called 'low-carbon hydrogen'.

C. Grey hydrogen

- Currently, this is the most common form of

Hydrogen is a clean alternative to natural gas. It's the most abundant chemical element, estimated to contribute 75% of the mass of the universe. On earth, vast numbers of hydrogen atoms are contained in water, plants and animals. But while it's present in nearly all molecules in living things, it's very scarce as a gas – less than one part per million by volume.

1. Importance of hydrogen as a future clean energy source

- A fuel is a chemical that can be 'burnt' to provide useful energy.
- Burning normally means that chemical bonds between the elements in the fuel are broken and the elements chemically combine with oxygen (often from the air).
- When we burn hydrogen, the only waste product is water vapour

2. Production of Hydrogen

- To produce hydrogen, it must be separated from the other elements in the molecules where it occurs.
- The two most common methods for producing hydrogen are steam-methane reforming and electrolysis.

3. Classification of hydrogen according to production

A. Green hydrogen

- Green hydrogen is the one produced with no harmful greenhouse gas emissions.
- Green hydrogen is made by using clean electricity from surplus renewable energy sources, such as solar or wind power,

India is witnessing an unusually long series of heatwaves that began in the end of March and scorched north India for most of April. According to India Meteorological Department (IMD), April was the hottest in north-west India in 122 years. It has also been an unusually hot April — with temperatures touching above 40°C — in large parts of Bihar, Jharkhand and West Bengal.

1. About heatwaves

- A heatwave is declared when the maximum temperature is over 40°C and at least 4.5 notches above normal.
- A severe heatwave is declared if the departure from normal temperature is more than 6.4 degrees, according to the IMD.
- Based on absolute recorded temperatures, a heatwave is declared when an area logs a maximum temperature of 45°C.
- A severe heatwave is declared if the maximum temperature crosses 47 degrees.

2. Spread of heatwave in India

- Records from IMD suggest that the average maximum temperature till April 27 was 35.7 degree Celsius, the highest in five years for this month.
- In Madhya Pradesh, Rajasthan, Punjab, and Gujarat, the average maximum temperature in April 2022 so far has been the highest since 1951.
- It has been the second highest in Delhi, Uttar Pradesh, and Haryana.
- In most of these States, the temperature has been consistently above 42 degree Celsius and around 5-6 degrees above normal for this time

3. Favourable Conditions For Heat Wave

- Transportation / Prevalence of hot dry air over a region: There should be a region of warm dry air and appropriate flow pattern for transporting hot air over the region.
- Absence of moisture in the upper atmosphere: The presence of moisture restricts the temperature rise.
- Sky should be practically cloudless: To allow maximum insulation over the region.



Heat Wave

- Large amplitude anti-cyclonic flow over the area.
- Heat waves generally develop over North-west India and spread gradually eastwards & southwards but not westwards (since the prevailing winds during the season are westerly to north-westerly).
- But on some occasions, heat wave may also develop over any region in situ under the favourable conditions.

4. Role of Climate Change

- The heat-trapping consequences of global warming imply that climate extremes such as heatwaves are expected to rise in frequency.
- The main reason for the scorching heat in the northern parts of the country is lack of rainfall.
- The rain-bearing western disturbances originate because of temperature gradients between the northernmost parts of the globe and the latitudes passing through West Asia.
- Weaker gradients mean weaker rains.
- This March and April, cooler than normal conditions in the Pacific Ocean failed to aid rainfall in north India.

5. Impact of Heatwaves Over India

- Research through the years shows that the number of heatwave days in India is increasing every decade.
- From 413 in 1981-90 to 575 in 2001-10 and 600 in 2011-20, the number of days that see extremely hot days is persistently increasing at 103 weather stations.
- Heatwaves have killed more than 17,000 people in 50 years in India, according to a research study by IMD scientists.

of the year.

- IMD predicted that heat wave conditions will prevail in many parts of Punjab, north-west Rajasthan and Vidarbha, Maharashtra.
- It's also unusually hot in parts of Himachal Pradesh, west Madhya Pradesh, Jharkhand, Bihar, Gangetic West Bengal and Odisha.

- However, the intensity and length of heatwaves don't have a direct connection to India's monsoon that sets in over Kerala in June.

3. Spike in global crude oil prices

- In its statement, the RBI pointed to high crude oil prices in the wake of the Ukraine war as one of the key reasons for high inflation in India.
- But high crude oil prices were known to the RBI even in February too.

4. About high core inflation

- The RBI has stated that "core inflation is likely to remain elevated in the coming months."
- Core inflation going up is often more worrisome because it takes longer to both rise and fall.
- The prices of food and fuel tend to fluctuate a lot, while core inflation moves up or down slowly.
- As such, if core inflation is at 6%, it should have been more worrisome for RBI.

5. Monetary policy is lagging

- Often it is thought that as soon as RBI raises or reduces interest rates, the economy will respond immediately.
- But that does not happen. While such "monetary policy transmission" has improved over time, yet it can still take weeks to have full effect.
- In other words, if the RBI wanted to contain inflation in May, it should have perhaps acted in February or at least in April.
- Raising rates right now may not bring down the inflation rate immediately.

mean that the RBI can allow inflation to stay at 6% all or most of the time.

- Since October 2019, there has been just one month in which retail inflation has been close to 4%.
- In all other months, including those of the nationwide Covid-19 lockdown in 2020, inflation was well above 4%, and often even above the 6% mark.

RBI raised rates

2. Inflation on the rise since last two years

- By law, the RBI is supposed to target retail inflation at 4%.
- The law, however, prescribes some leeway to the RBI; it allows for retail inflation to vary by 2 percentage points on either side.
- So, in a particular month, the RBI could allow inflation to be 2% or 6%.
- However, on the whole, inflation should be around 4%—the leeway of 2% to 6% does not

The Reserve Bank of India (RBI), in a sudden move on 4th May, raised the repo rate by 40 basis points (bps) from 4% to 4.4% citing inflation that was globally "rising alarmingly and spreading fast". The repo rate increase was the first since August 2018.

1. Important Rates

- Repo Rate: Repo rate is the rate at which the central bank of a country lends money to commercial banks in the event of any shortfall of funds.
- Reverse Repo Rate : Reverse repo rate is the rate at which the central bank of a country borrows money from commercial banks within the country.
- Bank Rate : Bank rate is the rate charged by the central bank for lending funds to commercial banks.
- Cash Reserve Ratio : Cash Reserve Ratio is a specified minimum fraction of the total deposits of customers, which commercial banks have to hold as reserves either in cash or as deposits with the central bank.
- Marginal Standing Facility : Marginal standing facility (MSF) is a window for banks to borrow from the Reserve Bank of India in an emergency situation when inter-bank liquidity dries up completely.
- Statutory Liquidity Ratio: The ratio of liquid assets to net demand and time liabilities is called statutory liquidity ratio.

India, one of the fastest-growing economies of the world, is heavily investing in infrastructure and transport to transform its cities into world-class Smart Cities.

- Global CO2 regulations have pushed the industry to be agile in adopting the latest innovations.
- There is a shift towards sustainable development to slow down climate change.
- To minimize dependence on fossil fuels and reduce pollution in metro cities, the government has taken several measures:
 - a) This Union budget emphasized creating

1. Innovations for New Mobility Solutions

- Transforming with changing consumer preferences, the industry is racing into a future of electric vehicles (EVs), connected cars, sensors and new business models like mobility-as-a-service.
- Non-service businesses are transforming vehicle build and design.
- New mobility solutions are a precursor to innovation in the automotive industry.

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2. Catalyst for Automobile Industry Transformation

- Latest trends in the auto industry are guided by technology.
- A move from conventional manufacturing to state-of-the-art design and manufacturing ecosystems is underway, with growing collaborations and emerging startups in the software space.
- There is a sharp rise in initiatives to transform the conventional internal combustion engine (ICE) auto industry into a technologically sophisticated one.

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3. Consumer Related Challenges

- Integrated mobility solutions have been emerging to address consumer challenges.
- Convenience is a key factor in today's hyper-connected world, where easy-to-use, automated and digitized options are preferred.
- Anticipating market trends and exploring the consumer viability of business models require

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Mobility Transformation

analysing consumer preferences with the help of telematics.

- These tracking tools help a business become more agile and also identify and scale new opportunities.

- Paucity of semiconductors :
 - o The automobile sector is also going through a semiconductor shortage globally.
 - o Automobiles now have more electronic components, driven by smart connectivity features and re-engineered to meet tighter emission norms.

5. Milestones To be Achieved

- **Appropriate Charging Infrastructure :**
 - o Many areas need to be worked upon for the expansion and integration of e-mobility.
 - o Range anxiety is one such point of contention for consumers who fear being stranded in case their EVs run out of charge.
- **Cost of Batteries :**
 - o The cost of batteries, which pushes up the total cost of EV ownership, is also being addressed.
 - o PLI schemes that support the localization of battery production, new battery chemistry and swappable battery models are expected to provide a major push.
- **Increase in Investment :**
 - o Investment in manufacturing by component players can be increased through demand aggregation for components.
 - o Non-essential items like motors and connectors can easily be aggregated.
 - o The scaling opportunity that can justify investments will be a major motivation.
 - o Original equipment and component makers will need to work closely in the EV space to develop products from an early stage.

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‘Digital transformation’ is the buzzing word in the town. The idea of such extreme change can be intimidating and is often one reason why MSMEs (Micro Small and Medium Enterprises) are in two minds when evaluating digital solutions. They fear a lack of resources or a complete reset. Digital transformation can be achieved in small & incremental steps.

1. Identifying Core Areas For Digitization

- The pandemic has brought to the fore digital-first or digitally native players.
- Though this development might be a bit overwhelming for traditional small businesses, they can take solace from the fact that all businesses have at their core the need to build customer trust.
- Traditional businesses that have survived for many years have a definite edge over new businesses on this count.
- Such SMBs can begin their digital transformation by identifying the core problems and categorizing them based on priority.
- The process will also give insights on how companies can phase their digital transformation journey.
- The pandemic has brought about a much larger shift in adapting to further change:
 - o Be it automating workflows.
 - o Shifting to ecommerce.
 - o Converting to D2C brands.
 - o Using payment gateways.
 - o Remote communication tools etc.
- A good place to start a revamp would be a business process like inventory

2. Hybrid Models need of the hour

- The reality is traditional businesses have the flexibility to choose physical or virtual as their mainstay or also opt for a hybrid model.
- One example from the retail world is how online ecommerce stores and platforms have gone about establishing physical stores.
- In India too, this is evident: popular

online furniture stores have established physical ‘experience’ centres in major cities and towns.

- Customers still prefer to experience certain products or services, and in-person meetings create the most important trust factor ahead of a sale.

3. Training employees

- Digital transformation of course requires some training and re-structuring.
- Business owners can designate leaders to train the team and drive the usage of tools.
- Getting everyone on board is important.
- Most entrepreneurs and small business owners hire generalists that wear multiple hats.
- Hiring a few specialists helps develop long-term digital capacities.
- Effective businesses also re-organize themselves and re-designate their staff to bring about clarity in terms of functioning.

4. Digital Training

- A three-pronged strategy for this is as follows:
 - o First, as there exists variations in the benefits accrued across age, location of residence and income of the participants a more decentralised programme for training with community participation needs to be designed.
 - o Second, there is a need to ascertain what specific barriers rural entrepreneurs experience before engaging in large scale ICT interventions and training for small businesses.
 - o Third, in designing such interventions institutions need to take into account the medium-term nature of training programmes as a single one time training might not yield desired results. These could help in deriving benefits of the phrase ‘digital literacy’ in the broader sense of the term.

MSMEs need digital transformation

management.

- Supply chain disruptions have become a common pain point during the pandemic, and always-on inventory and supply chain management have helped some businesses get an edge over others.
- In the B2C space, businesses have gained by going online from offline quickly.
- Many businesses started managing their social media presence directly instead of leaving it to agencies.
- Social media marketing has become an integral part of their brand communication.

3. Battery-as-a-service Business Model

- The battery-as-a-service business model is one in which companies set up dedicated battery swapping stations.
- These stations maintain stocks of replaceable batteries which are charged and kept in the stations.
- Customers who have compatible EVs can then come in and swap out their discharged batteries and have it replaced with the charged ones at these stations, for a subscription or a pay-as-you-go model.

Government think tank Niti Aayog recently released a draft battery swapping policy under which all metropolitan cities with a population above 40 lakh will be prioritised for development of battery swapping network under the first phase.

1. About Battery Swapping

- Battery swapping is a mechanism that involves exchanging discharged batteries for charged ones.
- This provides the flexibility to charge these batteries separately by de-linking charging and battery usage, and keeps the vehicle in operational mode with negligible downtime.

2. Key Proposals

- Reduce the difference between tax rates on lithium ion batteries and electric vehicle supply equipment. Currently, batteries attract GST at 18%, while EV supply equipment attract GST at 5%.
- Require state governments to ensure that public battery charging stations are eligible for power tariffs at concessional rates.
- Ease the registration process for EVs sold without batteries or those with swappable batteries.
- Assign a unique identification number to swappable batteries and battery charging stations.
- Vehicles with swappable batteries will be sold without a battery, providing the benefit of lower purchase costs to potential EV owners.
- Set up battery swapping stations at locations like retail fuel stations, public parking areas, malls, etc.

Battery Swapping Policy

higher, which is a significant deterrent in EV scale up.

• High Battery Replacement Cost:

- The battery replacement cost for high range EVs is expected to be up to INR 45000. Replacing the battery is a costly affair in this price-conscious 2W market.

• Long Charging Time of Batteries:

- Riders have often quoted a longer charging time of batteries instead of shorter fuel refilling time for ICE vehicles as one of the barriers to EV adoption.

4. About EV Safety

- **Rigorous Testing Protocol**
 - To ensure a high level of protection at the electrical interface, a rigorous testing protocol will be adopted, the draft said, to avoid any unwanted temperature rise at the electrical interface.
- **Battery management system**
 - The battery management system, which is a software that controls battery functions, will have to be self-certified and open for testing to check its compatibility with various systems, and capability to meet safety requirements.
 - This particularly assumes significance given the recent incidents of electric two-wheelers bursting into flames.

• Tested and certified batteries

- Batteries shall be tested and certified as per AIS 156 (2020) and AIS 038 Rev 2 (2020) standards for safety of traction battery packs, as well as additional tests that may be prescribed for swappable batteries which are subject to multiple coupling/decoupling processes at the connectors.

• Equipped with Advance features

- Additionally, for better protection of assets, swappable batteries will have to be equipped with advanced features like IoT-based battery monitoring systems, remote monitoring and immobilisation capabilities.

5. Concerns of Prospective Electric Vehicle Buyers

- **High Cost of EVs:**
 - Although the total cost of ownership for an electric 2-wheeler is getting comparable to an Internal Combustion Engine (ICE), the acquisition price for EVs is still 30-50%

MCQs Based on Environment and Ecology

- Q1.** With reference to 'Global Environment Facility' (GEF), consider the following statements:
1. It is partnership of countries, civil society organizations and private sector
 2. GEF provides grants for projects related to biodiversity, climate change, the ozone layer etc
- Which of the statements give above is/are correct?
- (a) 1 only
(b) 2 only
(c) 1 and 2 both
(d) Neither 1 nor 2
- Q2.** Which of the following statements is/are correct about BSE-GREENEX:
- (a) This index has been developed by BSE in collaboration with IIM Ahmedabad
(b) BSE greenex will measure the performances of companies in terms of carbon emissions
(c) The new index will comprise 20 stocks based on a minimum carbon footprint
(d) All of the above
- Q3.** Consider the following statements about the 'Boreal Forest':
1. it is also known as snow forest.
 2. it is a biome characterized by coniferous forests.
 3. it is the world's largest terrestrial Biome.
- Select the correct answer using the code given below:
- (a) 1, 2 and 3
(b) 1 and 2 only
(c) 2 and 3 only
(d) 1 and 3 only
- Q4.** Consider the following pairs-
- | Wetlands | Confluence of Rivers |
|------------------------|------------------------------|
| 1. Ropar wetland | : Confluence of Beas River |
| 2. Deepor beel wetland | : Confluence of Lohit |
| 3. Kanjli wetland | : Confluence of Sutlej River |
- Which of the above pairs is/are correctly matched ?
- (a) 1 and 2 only
(b) Only 3
(c) 1, 2 and 3
(d) None of these
- Q5.** Which of the following two states have maximum tigers ?
- (a) Madhya Pradesh and Karnataka
(b) Uttarakhand and Madhya Pradesh
(c) Karnataka and Sikkim
(d) Uttarakhand and Sikkim
- Q6.** Organisms that can tolerate only a very narrow range of temperature are called:
- (a) Eukaryotic organism
(b) Stenothermal
(c) Eurythermal
(d) Pyrothermal
- Q7.** Transfer of energy in different trophic levels of an ecosystem is called:
- (a) Bioenergetics
(b) Biosystem
(c) Geobiocoenosis
(d) Holocoenotic
- Q8.** The species, though insignificant in number, determine the existence of many other species in a given ecosystem Such species are known as-
- (a) Keystone species
(b) Sacred species
(c) Endemic species
(d) Extinct species
- Q9.** Consider the following about the major causes of species losses in a geographical region-
1. Habitat loss and fragmentation
 2. Over-Exploitation
 3. Alien Species
 4. Co-extinction
- Select the correct answer using the code given below :
- (a) 1, 2, 3 and 4
(b) 2, 3 and 4 only
(c) 3 and 4 only
(d) 1, 2 and 3 only
- Q10.** The rate of production of organic matter during photosynthesis called:
- (a) Net primary productivity
(b) Gross primary productivity
(c) Secondary productivity
(d) (a) and (b) both

Q11. Consider the following :

1. Newly exposed rock and sand
2. Newly exposed glacier
3. Lava flows
4. A stable deciduous forest community.

Which of the Examples given above are associated with primary succession ?

- (a) 1, 2, 3 and 4
- (b) 2, 3 and 4 only
- (c) 1, 2 and 3 only
- (d) 3 and 4 only

Q12. A plant that grows in the water of high salinity or coming into contact with saline water, is called-

- (a) Halophyte
- (b) Xerophyte
- (c) Epiphyte
- (d) Hydrophyte

Q13. Consider the following statements regarding desert plants:

1. Many desert plants have a thick cuticle on their leaf surface and have their stomata arranged in deep pits to minimise water loss through transpiration.
2. They have a special photosynthetic pathway that enables their stomata to remain closed during day time.

Which of the statements given above is/are correct ?

- (a) 1 and 2 both
- (b) 1 Only
- (c) 2 Only
- (d) Neither 1 nor 2

Q14. Consider the following statements-

1. Mammals from colder climate generally have shorter ears and limbs to minimise heat loss.
2. In the polar seas aquatic mammals like seals have a thick layer of fat below their skin that acts as an insulator and reduces loss of body heat.

Which of the statements given above is/are correct ?

- (a) 1 Only
- (b) 2 Only
- (c) 1 and 2 both
- (d) Neither 1 nor 2

Q15. Which one of the following Biosphere Reserve is not listed in Man and Biosphere Reserve programme (MAB) ?

- (a) Simlipal Biosphere

- (b) Nicobar Islands
- (c) Manas Biosphere
- (d) Nokrek Biosphere

Q16. Match the following pairs :

Biosphere Reserve	State
A. Cold Desert	1. Sikkim
B. Khangchendzanga	2. Himachal Pradesh
C. Dibru-Saikhowa	3. Arunachal Pradesh
D. Dihang-Dibang	4. Assam

Code :

	A	B	C	D
(a)	1	2	3	4
(b)	2	1	3	4
(c)	2	1	4	3
(d)	3	2	1	4

Q17. Consider the following statements-

1. Ramdeo mishra is known as the 'father of ecology' in India.
2. The Government of India established the national committee for environment planning and co-ordination in 1980.

Which of the statement given above is/are correct ?

- (a) 1 Only
- (b) 2 Only
- (c) 1 and 2 both
- (d) Neither 1 nor 2

Q18. Match the following pairs :

Tiger Reserve	State
A. Bandipur	1. Chattisgarh
B. Melghat	2. Karnataka
C. Palamau	3. Maharashtra
D. Indravati	4. Jharkhand

Code :

	A	B	C	D
(a)	1	2	3	4
(b)	1	3	4	2
(c)	2	4	3	1
(d)	2	3	4	1

Q19. Consider the following elements about derived sources of Ethanol :

1. Corn
2. Wheat
3. Potato wastes
4. Cheese whey

Select the correct answer using the code given below :

- (a) 1, 2 and 3 only
- (b) 3 and 4 only
- (c) 1 only
- (d) 1, 2, 3 and 4

Q20. Match the following pairs :

(Tribes)	(Occupation)
A. Todas	1. Agriculturists
B. Badaga	2. Dairy men
C. Kotas	3. Master craftsmen
D. Irula	4. food gatherers
E. Kurumbas	5. Sorcery

Codes:

	A	B	C	D	E
(a)	2	1	3	4	5
(b)	1	2	3	4	5
(c)	2	1	4	3	5
(d)	1	2	4	3	5

Q21. Which type of forests are found in Kerla, Karnataka and Arunachal pradesh ?

- (a) Tropical deciduous
- (b) Tropical Evergreen
- (c) Mountain forest
- (d) Tropical thorn forest

Q22. Match the following pairs :

Column-I	Column-II
A. Plants	1. Consumers
B. Animal	2. Autotrophs
C. Men	3. Carnivores
D. Lions	4. Omnivores

Codes:

	A	B	C	D
(a)	2	1	4	3
(b)	1	2	3	4
(c)	2	1	3	4
(d)	2	3	4	1

Q23. Which of the following Countries gained the highest position in HDI in South Asia Region.

- (a) India
- (b) Sri lanka
- (c) Pakistan
- (d) Bangladesh

Q24. Consider the following statements about 'Ethanol' :-

1. it can serve as an alternative source of energy in

future.

2. its a type of alcohol derived by fermentation of sugar.
3. Starch from potatoes and cereals are also used in fermentation.
4. Ethanol is mixed with petrol to run motor vehicles.

Which of the statements given above are correct ?

- (a) 1, 2, 3 and 4
- (b) 1, 2 and 3 only
- (c) 2, 3 and 4 only
- (d) 3 and 4 only

Q25. Consider the following statements about Biomining :

1. It is a type of Microbial leaching.
2. It is the process by which metals are dissolved by micro organisms from ore-bearing rocks.
3. The low grade ores contain significant amount of Nickel, lead, Zinc, which could be processed by Bio-mining.

Which of the statements given above is / are correct?

- (a) only 2
- (b) 1 and 3 only
- (c) 3 only
- (d) 1, 2 and 3

Q26. Consider the following statements :

1. Bio-remediation refers to the process of using micro-organisms to degrade waste matter.
2. This can be done by introducing nutrients to stimulate the activity of Bacteria in the waste or by adding new bacteria to the soil.
3. Nitrogen Fixation is a type of bio-remediation.

Which of the statements given above is / are correct?

- (a) 3 only
- (b) 1 and 2 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Q27. Which one of the following statements is not correct about Enzymes ?

- (a) Enzymes are hormones, which are produced by Bio-chemical reactions.
- (b) They were prepared by micro-organism, animals and plants.
- (c) The industrial production of Enzymes are produced on large scale are used in commercial operation.
- (d) None of these

Q28. Which one of the following is correct sequence of Biomagnification ?

- (a) Algae Fish Shell fish Man
- (b) Algae Shell fish Fish Man
- (c) Shell fish Algae Fish Man
- (d) Shell fish Fish Algae Man

Q29. Which of the following is related to sustainable development concept ?

- (a) Brundtland Commission
- (b) Fulbright Commission
- (c) Holdren Commission
- (d) None of these

Q30. Stockholm Conference, 1972 was focused on :

- (a) Wildlife Protection
- (b) Biodiversity Protection
- (c) Forest Conservation
- (d) Human Environment

NOTES

Answers

- | | | | |
|-----|-----|-----|-----|
| 1. | (c) | 16. | (c) |
| 2. | (d) | 17. | (a) |
| 3. | (a) | 18. | (d) |
| 4. | (d) | 19. | (d) |
| 5. | (a) | 20. | (a) |
| 6. | (b) | 21. | (b) |
| 7. | (a) | 22. | (a) |
| 8. | (a) | 23. | (b) |
| 9. | (a) | 24. | (a) |
| 10. | (b) | 25. | (d) |
| 11. | (c) | 26. | (b) |
| 12. | (a) | 27. | (a) |
| 13. | (a) | 28. | (b) |
| 14. | (c) | 29. | (a) |
| 15. | (c) | 30. | (d) |

MCQs Based on Current Affairs

- Q1.** With reference to the NETRA project, consider the following statements:
1. It is based on ISRO's plan to enhance space debris tracking capability.
 2. The specialty of this radar is that it is capable of detecting objects more than 5 cm in size.
 3. ISRO will deploy two such radars at a distance of 1000 km.

Select the correct statement(s) using the codes.

- a) 1 and 2 only
- b) 1 and 3 only
- c) 2 and 3 only
- d) All are true

Answer: b

- Q2.** What is the correct order of the top states with respect to fruit production in the country?
- a) Andhra Pradesh > Maharashtra > Uttar Pradesh > Karnataka > Gujarat
 - b) Andhra Pradesh > Uttar Pradesh > Maharashtra > Karnataka > Gujarat
 - c) Andhra Pradesh > Karnataka > Maharashtra > Uttar Pradesh > Gujarat
 - d) Andhra Pradesh > Maharashtra > Gujarat > Uttar Pradesh > Karnataka

Answer: a

- Q3.** With reference to the bilateral naval exercise 'Varuna', consider the following statements:
1. Recently this exercise was organized in the Bay of Bengal.
 2. This is a naval exercise between India and Britain.
 3. This is the 22nd edition of such an exercise.
- Select the correct statement(s) using the codes.

- a) 1 and 2 only
- b) 1 and 3 only
- c) 2 and 3 only
- d) All are false

Answer: d

- Q4.** What is the correct order of the top states with respect to vegetable production in the country?
- a) Uttar Pradesh > Madhya Pradesh > West Bengal > Bihar > Maharashtra
 - b) Uttar Pradesh > West Bengal > Madhya Pradesh > Bihar > Maharashtra
 - c) Uttar Pradesh > Madhya Pradesh > Maharashtra >

Bihar > West Bengal

- d) Maharashtra > Uttar Pradesh > Madhya Pradesh > West Bengal > Bihar

Answer: b

- Q5.** With reference to bilateral trade between India and China, consider the following statements:

1. Bilateral trade between India and China reached US\$155.62 billion in the last financial year.
2. India mainly exports iron ore, diamonds, aluminum and refined copper cathodes to China.

Select the correct statement(s) using the codes.

- a) 1 and 2 only
- b) only 1
- c) only 2
- d) Both are true

Answer: c

- Q6.** Which statement is false regarding Kaziranga National Park?

- a) It is situated in the flood plains of Brahmaputra valley in Assam.
- b) It was declared a national park in 1984.
- c) It was included in the UNESCO World Heritage List in 1985.
- d) It has the largest population of one horned rhinoceros in the country.

Answer: b

- Q7.** Who among the following is not a member of the Indian Ocean Naval Symposium (IONS)?

- a) South Africa
- b) Tanzania
- c) Australia
- d) Mongolia

Answer: d

Q8. Which two places have been recognized as geological heritage sites recently?

- a) Shivalik Fossil Park and stromatolite containing limestone of Dolomite/Buksa Formation (Sikkim).
- b) Shivalik Fossil Park and Volcanic Bedded Barites, Mangampeta, Cuddapah District.
- c) Stromatolite containing Dolomite/Buksa Formation Limestone (Sikkim) and Volcanic Bedded Barites, Mangampeta, Cuddapah District.
- d) Welded Tuff, Jodhpur District and Natural Geological Arch, Tirumala Hills, Chittoor District.

Answer: a

Q9. Which system has been introduced for fast and secure transmission of court orders?

- a) Drutgati
- b) Tez
- c) Faster
- d) Shakti

Answer: c

Q10. Recently which state has started School Chalo Abhiyaan for 100% enrollment in primary and upper primary school?

- a) Madhya Pradesh
- b) Uttar Pradesh
- c) Delhi
- d) Punjab

Answer: b

Q11. Which of the following Indians has received the 64th Grammy Award?

- a) Ricky Cage
- b) Falguni Shah
- c) Both
- d) None of these

Answer: c

Q12. At present, how many geological heritage sites are there in India?

- a) 32
- b) 34
- c) 36
- d) 40

Answer: b

Q13. Which statement is true regarding the recently concluded IMEX Maritime Exercise?

- 1. Out of the 25 member IONS, 15 members

participated.

2. The exercise is important for cooperation between the navies of the member countries and for collectively dealing with natural disasters in the region.

3. The port phase of IMEX-22 was conducted at Mormugao Port, Goa.

Select the correct statement(s) using the codes.

- a) 1 and 2 only
- b) only 1
- c) only 2
- d) All three are true

Answer: d

Q14. With reference to the one horned rhinoceros, consider the following statements:

- 1) The one-horned rhinoceros is listed as vulnerable on the IUCN Red List.
- 2) According to the new census in Kaziranga National Park, the population of one-horned rhinoceros has reached 4,613.

Select the correct statement(s) using the codes.

- a) 1 and 2 only
- b) only 1
- c) only 2
- d) All three are true

Answer: b

Q15. Consider the following statements :

- 1. Carbon sequestration is the process of capturing and storing atmospheric carbon dioxide.
- 2. Methods of carbon capture include biological, geological and technological methods.

Which of the above statement(s) is/are correct?

- a) only 1
- b) only 2
- c) Both 1 and 2
- d) None of these

Answer: c

Paper IV Case Study

Due to bumper harvest of onions in Maharashtra. It's market price slashed to rupees 500 per quintal. Government fixed M.S.P. at 1000 rupees per quintal to help farmers and issued orders to all onion procurement centres to purchase onions of farmers.

Due to huge gap in market price and M.S.P. a number of brokers development nexus with employees of procurement centres. They help businessmen in selling their last years stock of onions at procurement centres.

Farmers of Nasik district are facing a lot of problems in selling their onions. They wait for several days with their onions loaded in rented trolleys, which increase their cost. Being month of July, the climate is hot and humid. Frequent rain followed by sunlight often spoil their onions.

After getting frustrated, farmers blocked the national highway with their tractors and trolleys. It stopped movement of vehicles and transportation of goods.

Citizens of Indore are also facing a lot of hardships.

After getting information of the whole issue, Government immediately transferred district magistrate of Indore and send you to take charge of the district and solve the problems.

(a) Discuss the different ethical issues involved in the case.

(b) What would be your course of action?

Answer

(a) In the given case study I have been just appointed District Magistrate of Indore. I have to ensure availability of MSP to farmers and restore normalcy. Values like integrity, impartiality, compassion and justice are involved in the case.

Ethical Issues :

Given case study highlight the plight of farmers. Government has hiked the MSP to help farmers but brokers, employees of procurement centres and businessmen formed a nexus to cheat farmers.

After independence Government took many steps in the interest of farmers. Due to green-revolution, application of technology and hardwork of farmers. Per-hectare production of cereals increased manifold but farmers are still poor. Even bumper crops and MSP not help them. On

the other hand chemical fertilizers, weedicides, pesticides and mechanization of agriculture have increased their cost.

Happy and satisfied farmers, who are backbone of our economy, agitating just for payments of their produce. Such agitation also harm business and disturb life of cities. If not addressed properly agitation can turn violent.

Poverty anywhere is a threat to prosperity everywhere. Declaration of MSP is not enough. We must develop a fair system to ensure availability of MSP to farmers.

Answer (b) Course of action :

I will immediately raid procurement centre with necessary force and arrest all brokers and businessmen present there. We will also seize their vehicles and onions. I will take all related documents in my custody and stop payments of onions purchased in this season till completion of enquiry. I will issue new guidelines to purchase onions only from farmers after verifying their identity and ban purchase of last year's onions. Then we will start purchasing of farmer's onion with new guide lines. I will convince procurement centre to open more counters for speedy purchase and introduce token system to save farmer's time and money. New guide lines will permit payment only through bank accounts. Keeping records of farmers and their vehicles will be mandatory.

Next I will form a committee under a SDM to verify the allegations of farmers and role of employees of procurement centre within 5 days.

After that I will meet farmers and announce compensation for onion, spoiled at procurement centre in rain. I will provide them telephone number of my office and promise them necessary help in future also. It will ensure their trust in administration. Now I will convince them to open road and visit procurement centre to sell their produce.

Once SDM will submit his report, I will take disciplinary action against guilty employees. It will ensure justice for farmers and work as deterrent for future.

Eminent Personality: Rabindranath Nath Tagore



Gurudev Rabindranath Tagore was a famous Bengali poet, story writer, lyricist, musician, playwright and painter. He not only introduced the Indian culture to the western countries but also played an important role in introducing India to the culture of western countries.

Gurudev Rabindranath Tagore was the first non-European person to receive the Nobel Prize in Literature. He is the only poet in the world whose compositions became the national anthem of two countries - the national anthem of India 'Jana Gana Mana' and the national anthem of Bangladesh 'Amar Sonar Bangla'. He liberated Bengali literature from the influence of classical Sanskrit, giving a new direction to Bengali literature and music.

Rabindranath Tagore was born on 7 May 1861 in Thakurbari, Jorasan, present day Kolkata. His father's name was Devendra Nath Tagore and mother's name was Sharda Devi. His father was a leading leader of the Brahmo Samaj. The Tagore family made an important contribution to the 'Bengali Renaissance'. Rabindranath Tagore's elder brother Dwijendranath was a philosopher and poet, while his second brother Satyendra Nath Tagore was the first Indian to join the Indian Civil Service.

Rabindranath Tagore was married to Mrinalini Devi in 1883. In 1901, Rabindranath Tagore went to Shantiniketan and established an ashram here. Rabindranath Tagore stopped coming out near 1940 due to poor health, but whenever he was healthy, he created one of the finest works. Finally this great soul died on 7th August 1941.

As an art lover

Rabindranath Tagore developed an interest in writing poetry at an early age. In the 1890s, many of his poems, stories and novels were published and he became famous

in Bengal. He wrote many short stories on the background of the then rural Bengal.

In 1913 it was decided to award the Nobel Prize in Literature to Rabindranath Tagore on the basis of Gitanjali and his other works. After this, he was awarded a knighthood by the British government in 1915, which was returned by him in protest against the Jallianwala Bagh massacre. Rabindranath Tagore wrote poems as well as novels, articles, short stories, travelogues, dramas and thousands of songs. About 2220 songs written by him are called Rabindra Geet which is an integral part of Bengali culture. Some of his important songs include the national anthems of India and Bangladesh. Apart from this, Rabindranath Tagore was also a skilled painter.

As a humanist-

The Indian Renaissance and the immediate European conditions had a great impact on Rabindranath Tagore. He placed humanism over nationalism in the immediate period. He considered colonialism, racism and radical nationalism as enemies of humanity. He was a strong advocate of universal brotherhood and therefore he strongly advocated internationalism instead of nationalism.

The nationalism envisioned by Rabindranath Tagore had two basic elements- first humanity and second freedom. Considering humanism absent in the concept of nationalism, he considered it as an instrument of public self-interest. He always kept humanism above patriotism and nationalism, so he openly opposed any kind of violent movement including armed rebellion and revolution.

Tagore was opposed to the extremist concept of nation, nation-state and nationalism, so he kept away from the national movement but it was not that he remained indifferent to the national movement. In the Swadeshi movement, he took forward Bengali unity through the song 'Amar Sonar Bangla', while participating in the same movement, suggesting to celebrate Rakshabandhan day, participating in the Swadeshi movement. He always condemned the oppressive nature of the British government through his speeches and articles. He left the extremist ideology of nationalism and supported the national movement.

Key Terminology of Medieval History

Farsang- A measure of distance of 12,000 cubits (hands).	nance to religious persons.
Fatahnama- letter of victory.	Madrassa- Institute of Education.
Fatiha- Prayer, the first seven sentences of the Qur'an, It was also used in the sense of victory.	Mafrauj – Tax free land.
Fatwa- a legal decision under the Shariat or religious laws.	Mahajan- The person who gives money on interest.
Faujdar- Commander of a military contingent.	Mahsool- The gross revenue income of the state or province.
Fawazil- The amount remaining after the administrative expenses are met.	Majalis- Plural of Majlis means meeting.
Bandegan-i-Turk Chihalgani- 40 families of Turkic slave-officers known as Chalisa, who ruled the Delhi Sultanate between the rule of Iltutmish and Balban.	Majlis-e-Khas- Meeting of the Sultan and his high officials.
Bandian-i-Tajik- Non-Turkic officers or slaves who were foreigners in origin.	Majlis-e-Khilawat- Secret meeting of the Sultan and his superiors. It was the supreme advisory council of the Sultan.
Balahar- The smallest class or group of agricultural farmers.	Goods- Wealth, revenue, especially land revenue or rent.
Bar- Public royal court.	Malgujari – payment of land revenue or tax.
Berbek- The official in charge of the royal court was called Amire-Hajib in Persian.	Mahzar- A meeting of eminent persons and scholars organized to discuss important matters.
Baargah- Court.	Majmuadar- Officer to keep and check the variance of accounts.
Barid- Intelligence officer who collects information.	Malik- In the Delhi Sultanate, it meant the highest official, who was smaller than Khan but greater than Amir.
Barid-i-Mumalik- Chief in charge of the state's intelligence services.	Malika-i-Jahan- Title given to the world empress or chief queen of the Sultan.
Basim- Agent or ambassador of the state.	Malik Naib- The protector of the Sultanate or an officer acting on behalf of the Sultan.
Beck- A high official.	Malik Kabir- The great Malik or the Malik who held the second highest position in the Sultanate.
Biswa- A small unit of measurement of land.	Malik ut-Tujjar- An honorary title given to the chief of merchants or to a top official of the Sultanate.
Mandi- Grain Market.	Mameluk- slave officer.
Mansoor- Royal order or order.	Mamalkat- State, Sultanate.
Madad-e-Mash- Pension or land grant given as suste-	Marasim-e-Khidmati- Traditional honor or gift.

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AN INTRODUCTION



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Dhyeya IAS, two decades old institution, was founded by Mr. Vinay Singh and Mr. Q. H. Khan. Ever since its emergence it has unparalleled track record of success. Today, it stands tall among the reputed institutes providing coaching for Civil Services Examination (CSE). The institute has been very successful in making potential aspirants realize their dreams which is evident from the success stories of the previous years.

As the nation progresses, the young generations become more conscious and aware about their career options. There is plethora of jobs and one among them is civil services, the most prestigious service in the country, which needs no introduction. It attracts many young minds hailing from almost all spectra of academic disciplines. The popular belief that the examination for this service is only meant for the brilliant lots has become a taboo as it also attracts the hardworking, sincere and disciplined minds. The saying- "In the end passion and hard work can substitute natural talent" holds true. It gives immense power and opportunity for young folks to bring about the positive changes in the society which would bring harmony and development. It inculcates values, moral, ethos and feeling of national integrity.

Quite a large number of students desirous of building a career for themselves are absolutely less equipped for the fairly tough competitive tests they have to appear in. Several others, who have a brilliant academic career, do not know that competitive exams are vastly different from academic examination and call for a systematic and scientifically planned guidance by a team of experts. Here one single move may invariably put one ahead of many others who lag behind. Dhyeya IAS is manned with qualified & experienced faculties besides especially designed study material that helps the students in achieving the desired goal.

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