

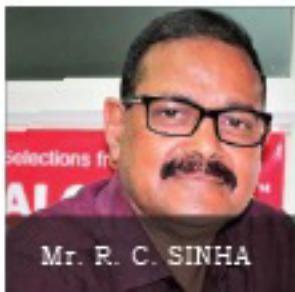


समिक्षा  
Comprehensive NEWS Analysis

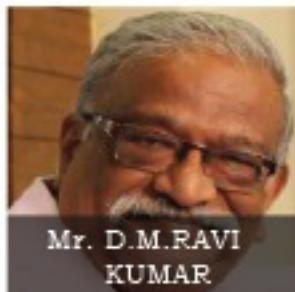
25-03-2019  
To  
31-03-2019  
MARCH  
Week - 05

# OUR TEAM

## GENERAL STUDIES



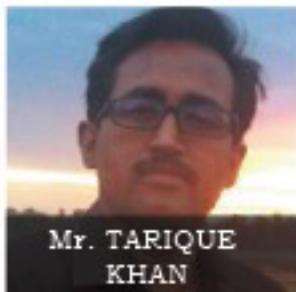
Mr. R. C. SINHA



Mr. D.M.RAVI KUMAR



Mr. SAROJ SAMAL



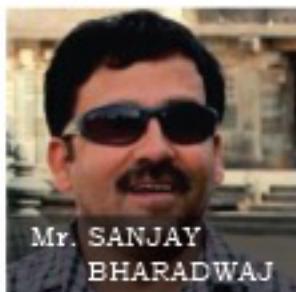
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## OPTIONALS



### SOCIOLOGY

Mr. SAROJ SAMAL

### Public Administration



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Mr. D.M.RAVI KUMAR



### MATHEMATICS

Mr. VINNAKOTA SRIKANTH



### GEOGRAPHY

Mr. PRIYESH SINGH SENGAR

## OTHER OPTIONALS

ANTHROPOLOGY

POLITICAL SCIENCE

TELUGU LITERATURE

HISTORY

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# Polity and Governance

## 1. Fake News Menace in India

With the Lok Sabha elections near, it is really important that Indians have access to credible and trustworthy information before they vote. The issue is that many do not feel they do. Notably, after the Pulwama attack, social media and messaging apps had overthrown with false and deceptive news content as people were trying to understand the horrible violence. This reflects the extent of the fake news menace and the threat it poses to the Indian democracy.

### Fake news:

- Fake news is a kind of yellow journalism which comprises intentional misinformation or hoaxes distributed through conventional print, broadcasting news media, or via Internet-based social media.
- Fake news is intentionally written in order to gain financially or politically through sensationalist, exaggerated, or false headlines for capturing the attention of the people.

### Causes for the spread of Fake News:

- **Internet:** Everyone with an internet connection and a social media presence is now a content generator. Free internet service has provided access to everyone to post whatever they want and hence created a trend of fake news spreading like wildfire.
- **Not checking authenticity:** Everyone is in a hurry to like/share/comment instead of checking the authenticity of the news.
- **Lack of regulator:** in social media platforms like we have in print or television media.
- **Emotions:** are trumping reasons when it comes to sharing news. For example, the idea of nation-building is trumping the truth when it comes to sharing stories that have nationalistic messages like India's progress, Hindu power and revival of lost Hindu glory without any attempt at fact-checking.

### Consequences of Fake News:

#### Political:

- Targeting a specific organization or person with an intent to either glorify or bring malice to it.
- Political parties try to get political benefits by polarizing the voter's mind.

WHY IS THIS CONTENT BEING CREATED?							
Fake news is created for different reasons, and there's usually a pattern to the type of content created depending on the motive or the goal of circulating the untruth							
Type of fake news ▾	Satire	False Connection	Misleading Content	False Context	Imposter Content	Manipulated Content	Fabricated Content
Poor Journalism		✓	✓	✓			
Parody/Provoke	✓				✓	✓	✓
Partisanship			✓	✓			
Profit	✓				✓		✓
Political Influence			✓	✓		✓	✓
Propaganda		✓	✓	✓	✓	✓	✓

Source: First Draft, a project of Harvard Kennedy School's Shorenstein Center

- For example, a news channel was established just to support the accused in Jessica Lal Murder Case.
- Another example is the extensive use of social media in influencing public opinion in the last US Presidential election.

### **Economic:**

- Hoaxes of GPS chips in the Rs 2,000 note after the demonetization initiative of the government through both media and WhatsApp messages led to widespread confusion among holders of the new note.
- Fake news has also been used to deceive illiterate people financially. Example- Chit fund schemes introduced the concept of online fraud through spam emails

### **Society:**

- It affects the spirit of common brotherhood and increases intolerance in the country.
- Example: Spreading fake photos to bring about communal clashes in the country/region.
- 2012 mass exodus of North-Eastern people from Bangalore on false online threats.

### **Security:**

- Media companies tend to get easy viewership by means of promoting sensational news. For example: branding foreign prisoners as spies or terrorists without valid proof.
- Another example is the fake news circulation in Kashmir valley showing shocking attacks on the Army and inhumane repression of the civilians.

### **Nation's reputation:**

- The portrayal of India as an unsafe place for women by international media has created a false image of the nation.

### **Personal reputation:**

- Fake news results in harassment and threatening of innocent people and damages their reputations. It can also result in deaths.
- For example, rumours about child-lifters and cattle thieves led to mob attacks and deaths across India.

### **Faith in media:**

Fake news reduced people's belief in social, print and electronic media = affect the benefits of these media.

### **What are the concerns/challenges with preventing fake news on social media?**

- **User-generated contents:** It is unreasonable to put the blame on the social media platforms for the fake news menace. Because the platforms such as Facebook, WhatsApp etc. are not generating content, but by

the users themselves = cannot hold all of them responsible. So rather than forcing a solution on technology providers alone, the centre needs to address the consumer end as well and adopt a collaborative way to tackle the menace of fake news.

- **Privacy rights:** Security requirements should also consider the rights of millions of genuine users as the traceability would undermine the end-to-end encryption, weaken consumer privacy and cybersecurity. Need for high encryption: Data leaks at Facebook and Uber in the recent past have shown that the encryption has to be so high.
- **The welfare of Indians:** It could actually affect the welfare of Indian digital users. For instance, WhatsApp is crucial for rural people to cheaply connect with their family members far away and also send pictures of their products to clients all over India.
- **Jurisdiction issues:** As WhatsApp users converse outside Indian boundaries, the storage of foreign user's data could come with its own jurisdiction issues.

### **How to tackle it?**

- **Digital Literacy:** An effective approach to deal with the fake news is to improve digital literacy i.e., the ability to identify real news from fake news. Government, media, and technology should work together to improve the overall digital literacy in India.
- **Policy:** The government needs to come up with an effective policy framework to control fake news on social media platforms.
- **Ombudsman:** should be created to deal with the credibility of news sources and also ensure facts are reported.
- **Independent agency:** should be established to verify the data being circulated in social and other media.
- **Innovative approaches:** With the utilization of metadata (data about data) and human content moderation, WhatsApp could prevent fake news, misinformation and even punish bad actors, without breaking end-to-end encryption. When a message is reported and identified as fake, it should be permanently tagged = if someone tries to circulate it months later, it should only be transmitted with a statutory warning.
- **Policy machinery:** The state policy machinery should be strengthened to catch anyone responsible for spreading fake messages.
- **Hefty fines:** Similar to Germany, India should also impose hefty fines on Social media companies if they constantly fail to remove illegal content from their platforms.
- **Internal mechanisms:** Print and Electronic media should have an internal ombudsman to verify incidents, facts, and figures.
- **Role of NGOs:** and other civil society organisations in spreading awareness about the ill effects of fake news.

In today's technologically developed and connected world, fake news poses a grave risk to democratic setup. Proper actions need to be taken to ensure the distinction between news, opinion, and rumour. Fake news has great implications on society. Hence it is high time that the government takes stern measures to curb fake news menace and protect Indian democracy.

## **2. Martyr's Day: Nation Remembers Bhagat Singh, Rajguru And Sukhdev**

### **Context:**

- Bhagat Singh, along with two of his comrades, Sukhdev and Rajguru, were hanged by the British on March 23, 1931, in Lahore Central Jail which was then a part of British India.
- 2019 marks 88th Anniversary of their martyrdom
- It has been well over eight decades, but they continue to inspire us, with their love for India and the sacrifice they made for the country's freedom, at a very young age.

Bhagat Singh, Shivaram Rajguru, and Sukhdev Thapar

- Three most shining icons of the country's freedom struggle
- They were the three unparalleled revolutionaries in history
- The trio, were members of the Hindustan Socialist Republican Association

### **Contributions:**

1. **Defined nation and nationalism:** At a young age, Bhagat Singh defined nation and nationalism for us.
2. **On Universal Brotherhood:** At age 17, he published his first article (in 1924) in Matwala, a Hindi magazine from Calcutta. The subject was 'Universal Brotherhood'.
  - He imagined a world where "all of us being one and none is the other. It will really be a comforting time when the world will have no strangers."
  - He emphatically exclaimed that "as long as words like black and white, civilized and uncivilized, ruler and the ruled, rich and poor, touchable and untouchable, etc., are in vogue there was no scope for universal brotherhood".
  - He went on to say, "We will have to campaign for equality and equity. Will have to punish those who oppose the creation of such a world."

(Today, when many are busy "othering" and creating strangers out of their own fellow citizens need to grapple with Bhagat Singh's views, instead of merely glorifying him as a martyr.)

### **3. Strongest critique of untouchability and communalism:**

- He wrote series of articles on 'Anarchism' and was fiercely frank and bold enough to critically comment on the politics of senior leaders such as Lala Lajpat Rai and express his differences.

- He was also conscious of the international revolutionary struggles and ideologies.
- He was aghast that we claimed to be a spiritual country, yet discriminated against fellow human beings while the materialist West had done away with such inhuman obscurities long ago.

#### **4. On inclusiveness:**

- Bhagat Singh steadfastly remained committed to the idea of a plural and inclusive India.
- He founded the **Naujawan Bharat Sabha** in Lahore in 1926, whose manifesto said, “Religious superstitions and bigotry are a great hindrance in our progress. They have proved an obstacle in our way and we must do away with them. ‘The thing that cannot bear free thought must perish’.”
- In 1928, Bhagat Singh was acutely conscious of the **divisiveness of mixing religion with politics**.
- He wrote – “If religion is separated from politics, then all of us can jointly initiate political activities, even though in matters of religion we might have many differences with each other. We feel that the true well-wishers of India would follow these principles and save India from the suicidal path it is on at present.”
- He even had authored masterly essay, **‘Why I am an Atheist’**. Bhagat Singh observed: “Our retrogressive thinking is destroying us. We keep ourselves entangled in futile discussions about God and heaven, and remain busy in talking about the soul and God. We are quick to dub Europe as capitalist and don’t think about their great ideas or pay any attention to them. We love divinity and remain aloof from the world.”

Thus we can see here the evolution of his ideas on politics, society, religion and even faith in god.

#### **Conclusion:**

- The lessons from the lives of these revolutionaries remain as relevant today as they were during the independence movement.
- Their lives are proof that one is never too young to be politically aware, to educate oneself about the truth of the world at large, and to actively play a role in shaping the society one wants to live in.
- In these rancorous times, Bhagat Singh’s intellectual bequest should be a beacon to build a new India.

### **3. Global MPI Report 2018**

#### **Context:**

According to the Global MPI 2018 Report, India has reduced its poverty rate drastically from 55% to 28% in 10 years, with 271 million people moving out of poverty between 2005-06 and 2015-16.

## Global MPI 2018

- The United Nations development Programme (UNDP) and the Oxford Poverty and Human Development Initiative (OPHI) developed a new version of the global Multidimensional Poverty Index (MPI). The global MPI covers 105 countries in total, which are home to 77 per cent of the world's population, or 5.7 billion people. Of this proportion, 23 per cent of people (1.3 billion) are identified as multi dimensionally poor.
- For the 2018 global MPI, five of the ten indicators have been revised jointly by OPHI and UNDP to align the MPI with the 2030 Agenda. This is in response to the Agenda's call for a better measure of progress toward Sustainable Development Goal (SDG) 1 – “to end poverty in all its forms” – and to help achieve the principle of leaving no one behind.

### Global findings:

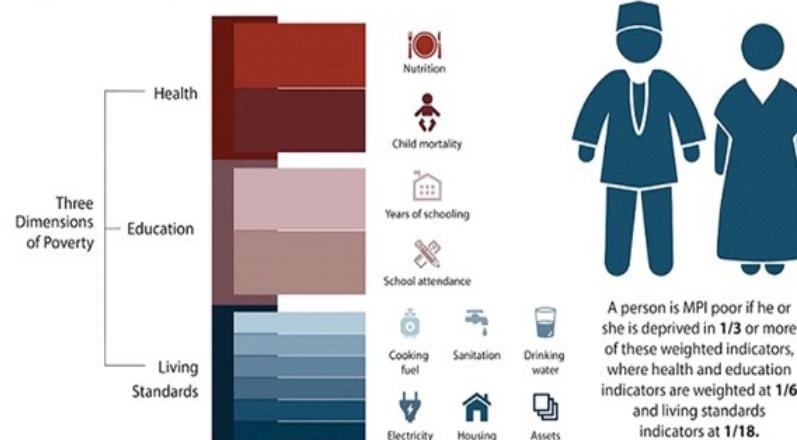
- Worldwide 1.3 billion people live in multidimensional poverty in the 105 developing countries it covered.
- Sub-Saharan Africa and South Asia together account for 83% of all multidimensionally poor.

Children accounts for nearly half (49.9%) of the world's poor.

### Indian Scenario:

- India has reduced its poverty rate drastically from 55% to 28% in 10 years, with 271 million people moving out of poverty between 2005-06 and 2015-16.
- However, India still had 364 million poor in 2015-16, the largest for any country, although it is down from 635 million in 2005-06.
- Of the 364 million people who were MPI poor in 2015-16, 156 million (34.6%) were children.
- 50% of ST members were still poor in 2015-16.
- 31% of Muslims were still poor in 2015-16.
- Bihar was the poorest state in 2015-16, with more than half its population in poverty.
- The four poorest states —Bihar, Jharkhand, Uttar Pradesh, and Madhya Pradesh — were still home to over half of all the MPI poor people in India.
- Jharkhand had the greatest improvement in reducing poverty.

The global MPI directly measures the deprivations people face at the same time in different aspects of their lives. The MPI has three dimensions and ten indicators.



## 4. Trust in Public Institutions

Ahead of the Lok Sabha elections, a public opinion survey – Politics and Society between Elections 2019 – in 12 states has found that political parties are the most distrusted political institutions in India.

### About:

- Name of the survey report:** Politics and Society between Elections 2019.
- Bodies involved:** The report has been published jointly by Azim Premji University and Lokniti.
- States/UTs covered in the survey:** 12.
- Survey Objective:** Apart from measuring institutional trust, the survey provides people's views on governance, sexuality, gender, nationalism, populism, caste and religious identities.

### Key findings of the survey:

- Political parties are the most distrusted political institutions in India.** Political parties had a negative net trust rate of -55% (calculated as the percentage of respondent who trust them minus the percentage who do not). **They are the only institutions with a negative net rate.**
- The Army is the most trusted institution in the country,** with an effective trust rate of 88%.
- The judiciary – including the Supreme Court, High Courts and district court – enjoys an effective trust rate of more than 60%.
- Almost 20% of those surveyed said that unemployment is the single biggest issue facing the country today. Other issues cited include development, growth and poverty (15%) and law, governance and corruption (13%).



### Important Info:

#### Lokniti?

- The Lokniti Programme for Comparative Democracy was established in 1997 as a research programme of the Centre for the Study of Developing Societies (CSDS), Delhi.

- CSDS is an autonomous social science research institute primarily involved in studying the democratic and electoral politics of India. It was founded in 1963 by political scientist Rajni Kothari.

## 5. J&K Presidential Orders: Analysis

### Introduction:

Under Article 370 of the Indian Constitution, only two articles apply to J&K: Article 1, which defines India, and Article 370 itself. Article 370 provides that other provisions of the Indian Constitution can apply to J&K “subject to such exceptions and modifications **as the President may by order specify**”, and with the concurrence of the state government.

### The 1954 Presidential Order:

- The Constitution (Application to Jammu and Kashmir) Order, 1954 applied to J&K provisions of Part-III of the Indian Constitution that relates to fundamental rights.
- It also introduced Article 35A which protected laws passed by the state legislature of J&K in respect of permanent residents from any challenge on the ground that they violated any of the fundamental rights.
- This order was ratified by the Constituent Assembly that also framed the J&K Constitution, before dispersing in 1956.

### Amendments to 1954 order:

- This 1954 ‘mother order’ had the requisite concurrence of both the state government and the J&K Constituent Assembly.
- Subsequently, 42 Presidential orders have been issued — all amendments to the 1954 mother order.
- Through these Presidential orders, successive central governments have extended 94 out of the 97 entries in the Union List, and 26 out of the 47 in the Concurrent List to J&K, and made 260 out of the 395 Articles of the Indian Constitution applicable to J&K.
- This list does not include The Securitisation and Reconstruction of Financial Assets and Enforcement of Securities Interest (SARFAESI) Act, 2002, the GST Acts, and the two constitutional provisions that were extended on March 1.

### Views of the Supreme Court:

- **Prem Nath Kaul vs The State of Jammu & Kashmir (1959):** The Constitution-makers were obviously anxious that the said relationship should be finally determined by the Constituent Assembly of the State itself.
- **Sampat Prakash vs State of Jammu & Kashmir, 1969:** Presidential orders could still be made through Article 370.

# THE HISTORY

**Article 370 of the Constitution is a law that grants special status to Jammu and Kashmir. It means:**

■ Except for defence, foreign affairs, finance and communication, all other laws passed by Indian Parliament need to be okayed by the state government before they are made applicable. This was specified in the Instrument of Accession signed by Maharaja Hari Singh (inset) when he agreed to join the Union of India in 1947, instead of going with Pakistan



■ As a result of this, the citizens of Jammu and Kashmir are governed by state-specific laws which come under the Constitution of Jammu and Kashmir, instead of those for the rest of India, especially where citizenship, ownership of property and some fundamental rights are concerned



■ The first Article of the Constitution of Jammu and Kashmir says that the state is and will remain an integral part of India

■ This article, along with Article 5 that defines the contours of jurisdiction of Indian Parliament regarding law-making for the state, cannot be amended

■ This arrangement was further ratified by the 1974 agreement between the then Prime Minister Indira Gandhi and the then J&K Prime Minister Sheikh Abdullah (appointed by Hari Singh)

■ The 1952 Delhi Agreement also specified that the state should have its own flag in addition to the Union flag and they should have the same status

■ It was agreed that head of state called Sadar-i-Riyasat (or the Prime Minister) was to be elected by the state legislature

■ The agreement opposed



Sheikh Abdullah with Pandit Jawaharlal Nehru (right).

imposition of Article 352, empowering the President to proclaim general emergency in the state

■ The state legislature has a six-year term, unlike other elected bodies, which have a five-year period, including Parliament

## IN A NUTSHELL

■ The Indian Supreme Court has no jurisdiction in J&K

■ Disrespecting the Tricolour and other national symbols is not a crime in the state

■ J&K residents enjoy dual citizenship. They will lose their J&K citizenship if they marry residents of other states

■ A Pakistani resident gains J&K citizenship if he marries a J&K citizen

■ RTE, RTI, CAG and majority of Indian laws are not applicable in the state

■ Because of Article 370, no outsider can purchase land in J&K

- **Maqbool Damnoo vs State of Jammu And Kashmir, 1972:** Governor is head of government aided by a council of ministers and is responsible to the State Legislature.

### Governor and the 1954 Order:

- Earlier, the Centre has amended the 1954 Order with the consent of the Governor's administration.
- In 1986, an amendment to the 1954 Order issued with the concurrence of Governor Jagmohan administration extended to J&K Article 249 of the Indian Constitution. The order was challenged in the J&K High Court, however the matter was never listed for a hearing.
- Amendments were made to the 1954 Order during Governor's Rule in 1993 and 1994 as well. These orders were issued to extend the duration of President's Rule in J&K.

### The Constitution (Application to Jammu & Kashmir) Amendment Order, 2019:

- On March 1, President Ram Nath Kovind issued an executive order amending The Constitution (Application to Jammu and Kashmir)

Order, 1954 to extend the provisions of the 77th and 103rd Amendments to the state.

- According to union government, the amendment “will give benefit of promotion in service to the Scheduled Castes, Scheduled Tribes, and also extend the 10 per cent reservation for economically weaker sections in educational institutions and public employment”.

### **Opposition to recent move:**

- This move by the Union Government has been challenged in the Jammu & Kashmir High Court.
- Major J&K parties said the order violated Article 370 — the provision that regulates J&K’s relationship with the Union.
- Two lawyers have challenged the power of the Governor to make the recommendation without the concurrence of the state government, and pleaded that the recent executive order along with the Jammu and Kashmir Reservation (Amendment) Ordinance, 2019, be struck down.

### **Conclusion:**

- The latest order has the consent of the Governor without the requisite aid and advice of the Council of Ministers. In a situation of Central rule, the Governor acts only as a nominee of the Union government and does not meet the definition of state government as laid down by Article 370 and the Supreme Court.
- Major J&K parties have always opposed the amendments to the 1954 Order without ratification by the Constituent Assembly of the state. The Centre could do it because the Supreme Court allowed it.

## **6. Drugs and Clinical Trials Rules 2019**

### **Context:**

Health and Family Welfare Ministry have notified the Drugs and Clinical Trials Rules, 2019 with an aim to promote clinical research in the country. The new rules will change the regulatory landscape for the approval of new drugs and conduct of clinical trials in the country.

### **Key Highlights:**

- The new rules will apply to clinical trial, bio-availability or bio-equivalence study, new drugs and regulation of ethics committee relating to clinical trial and biomedical health research.
- These rules provide for the disposal of clinical trial applications by way of approval or rejection or seeking further information within 30 days for drugs manufactured in India and 90 days for drugs developed outside India.
- In case of no communication from DCGI, the application will be deemed to have been approved.

- The requirement of a local clinical trial may be waived for approval of a new drug if it is approved and marketed in any of the countries to be specified by the Drugs Controller General with the approval of the government.
- The local clinical trial may also be waived if the application is for import of a new drug for which the DCGI had already granted permission to conduct a global clinical trial which is ongoing in India and in the meantime the new drug has been approved for marketing in a country specified by the DCGI and certain other conditions.
- In case of injury to a clinical trial subject, medical management will be provided as long as required as per the opinion of the investigator or till such time it is established that the injury is not related to the clinical trial.
- Also, the compensation in cases of death and permanent disability or other injury to a trial subject will be decided by the Drug Controller General.

# International Relations

## 7. Italy roads to Belt and Road Initiative

### Context:

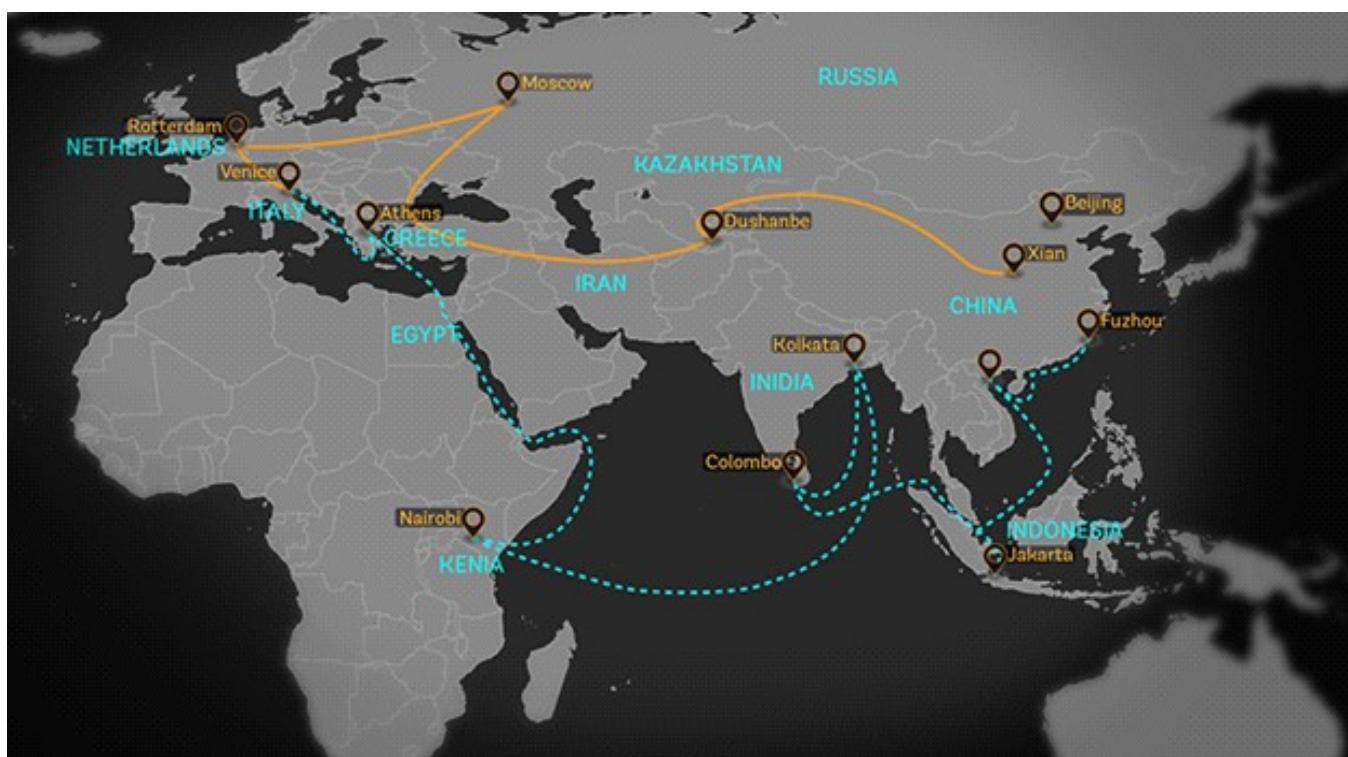
Italy recently signed a “non-binding”, protocol with China to take part in Beijing’s “Silk Road” of transport and trade links stretching from Asia to Europe.

- In doing so, Italy became the first G7 country to sign up for the massive project which has sparked unease in the U.S. and the European Union (EU) as China aspires to a greater world role.

### About Belt and Road Initiative

China's Belt and Road Initiative (BRI) is an ambitious programme to connect Asia with Africa and Europe via land and maritime networks along six corridors with the aim of improving regional integration, increasing trade and stimulating economic growth.

- The name was coined in 2013 by China's President Xi Jinping, who drew inspiration from the concept of the Silk Road established during the Han Dynasty 2,000 years ago – an ancient network of trade routes that connected China to the Mediterranean via Eurasia for centuries. The BRI has also been referred to in the past as ‘One Belt One Road’.
- The BRI comprises a Silk Road Economic Belt – a trans-continental passage that links China with south east Asia, south Asia, Central Asia, Russia and Europe by land – and a 21st century Maritime Silk Road, a sea route connecting China's coastal regions with south east and south Asia, the South Pacific, the Middle East and Eastern Africa, all the way to Europe.



The initiative defines five major priorities:

- Policy coordination;
- Infrastructure connectivity;
- Unimpeded trade;
- Financial integration; and
- Connecting people.

The programme is expected to involve over US\$1 trillion in investments, largely in infrastructure development for ports, roads, railways and airports, as well as power plants and telecommunications networks.

The BRI's geographical scope is constantly expanding. So far it covers over 70 countries, accounting for about 65 per cent of the world's population and around one-third of the world's Gross Domestic Product (GDP).

### **What's in it for Italy?**

- Italy is the first member of the G7 group of developed world economies to take money offered by China.
- It is one of the world's top 10 largest economies - yet Rome finds itself in a curious situation.
- The collapse of the Genoa bridge in August killed dozens of people and made Italy's crumbling infrastructure a major political issue for the first time in decades. And Italy's economy is far from booming.
- The country slipped into recession at the end of 2018, and its national debt levels are among the highest in the eurozone. Italy's populist government came to power in June 2018 with high-spending plans but had to peg them back after a stand-off with the EU.

### **China's benefits**

- "It adds gloss to the existing scheme and also shows that China has an important global role. The seemingly innocuous move comes at a sensitive time for Europe and the European Union, where there is suddenly a great deal of trepidation not only about China, but about working out how Europe or the EU should adapt and react to a changing world.
- The "made in Italy" label carries a reputation for quality worldwide, and is legally protected for products items processed "mainly" in Italy. In recent years, Chinese factories based in Italy using Chinese labour have been challenging that mark of quality. Better connections for cheap raw materials from China - and the return of finished products from Italy – could be a boost to its Economy.

### **Conclusion:**

China's Belt and Road train is steaming into the heart of Europe, with Italy being its next major destination. The warnings of the U.S. and the EU notwithstanding, as Italy sees its participation in the Belt and Road initiative as an opportunity.

## 8. **Abdelaziz Bouteflika**

In Algeria, the army chief has called for President Abdelaziz Bouteflika to be declared unfit to govern, following weeks of mass protests demanding the ailing leader step down after two decades in power.

### About:

- President Abdelaziz Bouteflika, the 82-year-old leader uses a wheelchair and has rarely appeared in public since suffering a stroke in 2013.
- However, Bouteflika said last month he would run for a fifth term in office, which triggered a wave of protests that brought hundreds of thousands into the streets.



### Important Info:

#### Algeria?

- **Location:** Algeria is a country in the Maghreb region of North Africa.
- **Capital:** Algiers.
- **Neighbours:** Algeria is bordered by Tunisia, Libya, Morocco, Western Saharan territory, Mauritania, Mali, Niger and Mediterranean Sea.
- **Size:** Algeria is the tenth-largest country in the world and the largest in Africa.
- **The Hoggar Mountains** are a highland region in southern Algeria.

## Economy

### 9. Aviation sector in turbulence

#### **Key pointers:**

- India has been the fastest growing aviation market over the last four years.
- India was seventh largest aviation market with 187 million passengers in FY 2017-18. It is expected to become the third largest by 2022.
- Along with telecom, the aviation sector has symbolised the successes of liberalisation — with a visible impact in terms of the entry of a number of players and opening up of access to flying, besides ensuring pan-India coverage.
- India's air passenger traffic is expected to grow six-fold to 1.1 billion and the number of operational airports increase to around 200 in 2040, according to Ministry of Civil Aviation's vision document released.

#### **Concerns: Turbulence in the domestic airline industry**

- The Indian aviation sector is the fastest growing in the world with a growth rate of 20 per cent a year. But despite this 20 per cent growth, we have only 3-3.5 per cent of population flying, signifying great potential to grow further.
- Full service carrier, Jet Airways, has been forced to ground several of its aircraft due to its inability to pay rentals. Jet Airways is looking for working capital loans but banks want the airline to show a turnaround commitment.
- Market leader, Indigo, is facing shortage of pilots.
- The Kingfisher Airlines had collapsed because of its owner's profligacy.
- Surging fuel prices and a weaker rupee are hurting Indian airlines.
- For the national carrier, Air India, with a debt burden of Rs 55,000 crore, the government has provided interim support, a sovereign guarantee and loaned funds from the National Small Savings Fund, helping it to keep flying while keeping alive another state-owned entity, BSNL, in the telecom sector.

It is ironic that the domestic aviation industry, expected to grow at 8.5% annually and register a six fold increase in the traffic flow over the next two decades, is facing an existential crisis.

#### **Floundering Growth**

There is not much hope for the (airline) industry until the cost structure fundamentally changes. The fault lies in two things.

- One is that the cost of operation for Indian airlines is very high compared to its peers in other parts of the world.

- The second is that revenue is lower compared with counterparts across the globe.

Cost of operation shoots up mainly because of aviation turbine fuel (ATF), which is around 50% of the total cost.

ATF has not been covered under Goods and Services Tax (GST). At present, it attracts an excise duty of 11%. Over this central levy, states charge different rates of value-added tax (VAT) that goes up to 30%.

Other than ATF cost, various surcharges, user development fee (UDF) and steep navigational, landing and parking charges at airports make the cost structure of domestic airlines unviable.

Classifying ATF as an input and subsuming it into the GST regime will allow airlines to claim credit on fuel tax.

## **10. Changing business and opportunities for employer and business organizations**

According to a new study released by the International Labour Organisation (ILO) in collaboration with the International Organisation of Employers (IOE), fast-changing job requirements are leading to a yawning skills gap in many parts of the world, with India being one of the hardest-hit.

### **About:**

- **Report name:** Changing Business and Opportunities for Employer and Business Organizations.
- **Released by:** The International Labour Organization's (ILO) Bureau for Employers' Activities (ACT/EMP) and the International Organisation of Employers (IOE).
- The study is based on a detailed survey of hundreds of corporate executives, extensive research, and consultations with Employer and Business Membership Organizations (EBMOs).

### **Survey results:**

- **Five trends that are radically altering global business models are:** technological innovation followed by global economic integration, climate change and sustainability, demographic and generational shifts, and a global shortage of skilled labour.
- **The skills gap is a major issue,** with 78% of corporate executives saying schools are failing to meet future employers' needs.
- By 2020 there may be a global shortage of 38-40 million highly skilled workers. **66% of Indian businesses say they are looking for quite different skills in new recruits than they were three years ago.**
- **Another emerging challenge is the rise of automation.** Informal jobs, typified by low productivity, face the largest threats due to this trend.

## Important Info :

### International Organisation of Employers (IOE)?

- The IOE is a not-for-profit organisation which describes itself as the largest network of the private sector. It has more than 150 national employer organisations members in more than 100 countries.
- Established in:** 1920.
- HQ:** Geneva, Switzerland.
- The IOE also acts as the Secretariat to the Employers' Group of the International Labour Organization's Governing Body.**

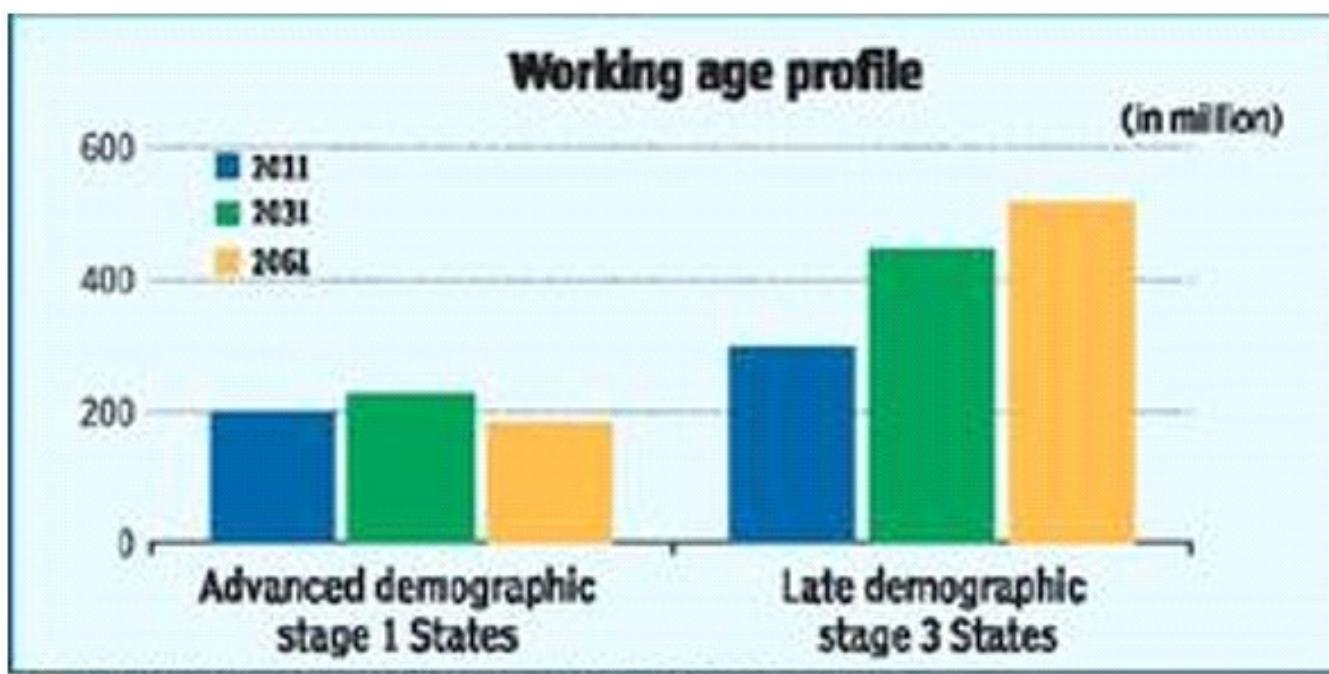
## 11. Demographic dividend: North – South divide

### Context

United Nations Population Fund (UNFPA) report on demographic dividend projects five States – Bihar, Jharkhand, Madhya Pradesh, Rajasthan, and Uttar Pradesh – will account for more than half of the growth in the labour force in India.

### Demographic dividend

- Demographic dividend refers to the growth in an economy that is the resultant effect of a change in the age structure of a country's population. The change in age structure is typically brought on by a decline in fertility and mortality rates.
- Demographic dividend has positive influence on growth and development as the ratio of the working age population is high and the dependency ratio in terms of proportion of children and elderly people is low



Stage 1 States: Karnataka, Kerala, Maharashtra, Punjab and Tamil Nadu

Stage 3 States: Bihar, UP, Chhattisgarh, Jharkhand, Madhya Pradesh and Rajasthan

## **Demographic dividend recent trend**

- Close to 30% of India's population is in the age group 0-14 years. The elderly in the 60-plus age group are still a small proportion (8%) of the country's population. The working age group 15-59 years' accounts for 62.5% of India's population. The working-age population will reach the highest proportion of approximately 65% in 2036.
- The southern states are showing faster decline in the population growth rate as compared to the northern states. India's fertility rate is now 2.6 but the rate in the southern states has fallen below two i.e. below the replacement level of 2.1
- The share and size of the elderly population is steadily rising. There are now 104 million elderly Indians.
- A labour shortage is also evident in large swathes of the southern economy

## **Impact**

1. **Internal migration:** The decline in the population growth rate in southern states has led to labor scarcity, particularly in the unskilled labor sector, and this is leading to substantial migration to cities in southern states from the northern states.  
Internal migration raises many larger social and economic issues which include housing and living conditions, and livelihood and social security, quite apart from the growing problem of social inclusion.
2. **Political representation:** The direct effect of such significant changes in population division between north and south states will be on the representation of states in Parliament. India has had to make its own adjustments to freeze the number of seats each state had in parliament through a constitutional amendment. But considering the significant changes in population, the seats have to be redistributed. When that happens, the share of parliamentary seats of low fertility southern states will fall sharply.
3. **Age-old problems:** A large proportion of the elderly in the population has enormous implications for the planning of social security programmes, particularly pensions and health insurance.
4. **Income disparities between regions:** In India, wealth generation is not uniform across all Indian states. Northern states are registering lower single-digit growth rates whereas the south Indian states are registering magnificent growth rates.

## **Steps to be taken**

There is a demographic divergence between regions in India and this should be seen not as a problem but an opportunity for overall socio-economic development in the country. And to make it happen, the policy focus has to be on education, health, skills and gainful employment, especially women's participation in workforce; safe, voluntary and gainful migration; and inclusive urbanisation

- South-western region will require workers for keeping institutions running, taking care of the elderly and maintaining the economic productivity while the north-central region will have high and possibly surplus young working age population. If right collaborative planning is being done by states, it could be a big game changer and a win-win situation for individuals, families, States.
- There is a need to gain deeper understanding of migration flows, so that estimations and projections can be made regarding changing needs for housing and infrastructure, healthcare and utilities, education and skills. States need to work together to provide portability of identity proof and entitlements, as well as build support systems for families left behind.
- Focus should be on addressing harmful practices such as child marriage, access to quality sexual and reproductive health services and family planning services to all, and provisioning of health, education, life and vocational skills to all the young people especially in northern states to reap benefits of demographic dividend

## **Way Ahead**

India will enjoy a longer span of demographic dividend because, as the window closes in some states, it will open in other states and it can guide the socio-economic development policy planning according to the age and sex structures in states or a set of states.

UNFPA advocates a differential approach in forward-looking policymaking and programme planning to harness the demographic dividend opportunity in those states where the windows for opportunity is closing soon. Fine-tuning the planning and implementation of schemes and programmes by factoring in population dynamics is likely to yield greater socio-economic impact and larger benefits for people.

## **12. RBI's Forex Swap and Its impact**

### **Context**

To improve domestic liquidity conditions, the Reserve Bank of India has decided to conduct a long-term forex swap auction.

### **What is forex swap**

- The swap is in the nature of a simple buy/sell foreign-exchange swap with the RBI.
- A bank shall sell U.S. dollars to the RBI, in turn the RBI will pay rupees to the participating banks at the current spot rate.
- Simultaneously, the banks will agree to buy-back the same amount of dollars from the RBI after three years, the tenor of current auction. The final exchange rate will be decided by an auction where banks will bid on the forward premium, they are willing to pay.

- Forex swap is different from currency swap where two parties exchange a notional principal with one another in order to gain exposure to a desired currency.
- Forex swaps and other types of foreign exchange operations are also open market operations. OMO is a direct instrument of monetary policy, because the instrument influences the money supply directly.
- RBI uses Open Market Operations along with other monetary policy tools such as repo rate, cash reserve ratio and statutory liquidity ratio to adjust the quantum and price of money in the system.
- On the other hand, in swap transaction, only authorised dealers, mainly banks, will be allowed to deposit US dollars in exchange for rupees.
- Under the current swap auction, RBI will buy US dollars from banks totalling to \$5 billion. Minimum bid size would be \$25 million and in multiples of \$1 million thereafter.

## **How it works**

- If the spot exchange rate is 70 to a dollar, say Bank A quotes a premium of 150 paisa and bids for \$25 million. So, the bank will get <sup>1</sup> 175 crore (\$25 million multiplied by the exchange rate of 70).
- After three years, the bank has to pay back approximately <sup>1</sup> 179 crore (\$25 million multiplied by the exchange rate of 71.5) to the RBI to buy back \$25 million.

## **Benefits of forex swap**

1. Increase liquidity in market: Indian financial markets have been undergoing liquidity problems since the IL&FS crisis. In addition to this, the demand for rupees is expected to spike in the coming weeks as a result of a huge spending towards the upcoming general elections. Swap Auction will increase the supply of rupees in the market.
2. Boost foreign exchange reserve: The auction will help to boost RBI's forex reserves by another \$5 billion. The forex reserve is one tool which the RBI uses to intervene in the currency market at times of abnormal volatility.
3. Improve credit: This auction is expected to improve fund availability with the banks and in turn moderate borrowing costs.
4. Benefits Importer: The decline in forward premium (especially at the longer tenor) will lower dollar hedging cost for importers.
5. Benefits banks: Banks which currently short on SLR (Statutory liquidity ratio) securities and cannot participate in OMOs. Dollar swap would help banks to improve their liquidity. Also, the cost of dollar swap is less than government securities.
6. Fiscal Discipline: Open market operations and sale of government bonds usually used to keep the interest rate lower artificially. Using different mechanism would implicitly infuse fiscal discipline.

7. Bring stability: Low premium would attract foreign flows into domestic markets. This also helps to hedge risks of exchange-rate depreciation at low costs.

### **Issues with forex swap**

1. Impact bond market: Until now, bond market is preferred route for short term credit adjustment. The success of Forex swap would have a negative impact on bond market
2. Limited participation: Only the Category-I banks are allowed to participate in the auction, not all players in the financial services sector will be able to get the benefits.

### **Way Ahead**

This is first time that such a tool has been deployed by the RBI, which has been normally using OMOs to inject liquidity into the system. The RBI's latest move is in line with its easy monetary policy stance. This would definitely help to meet the durable liquidity needs of the system as many analysts believe that this led to faster monetary policy transmission, unlike the OMOs which is good enough for government bond investors only, but the real impact could be analysed only in coming days.

# Geography and Environment

## 13. Shifting of Magnetic North Pole – Causes & Impacts

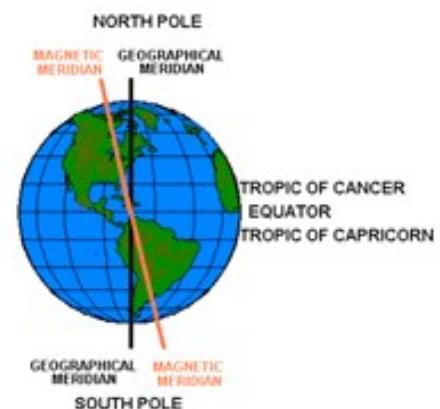
Researchers have revealed that Earth's Magnetic North Pole is rapidly drifting away from Canada Arctic towards Russia. The issue has got so bad that researchers around the world are scrambling to update the World Magnetic Model (WMM) that is the base of all modern navigation, from the systems that steer ships at sea to Google Maps on smart phones.

### What are the differences between Geographic Poles and Magnetic Poles?

The earth has 2 pairs of north and south poles as follows.

#### Geographic North and South Poles

- The geographic poles are determined by the axis around which the planet spins.
- The geographic north and south poles are where lines of longitude (meridians) converge in the north. They are directly opposite each other.
- Geographic poles are static or fixed.



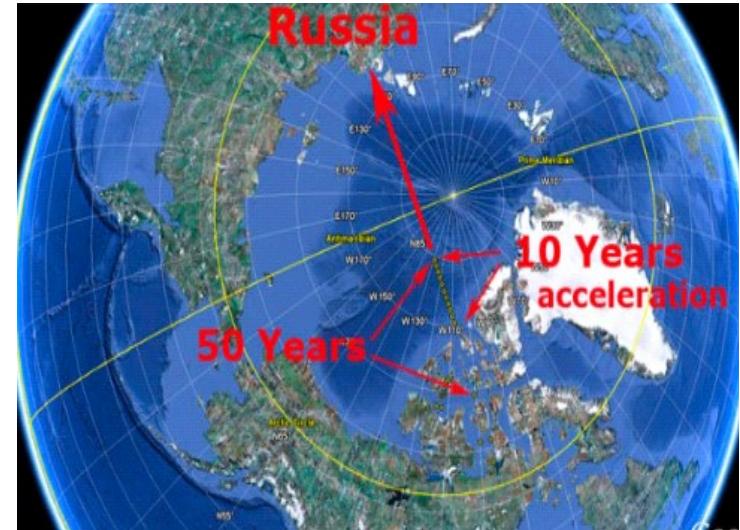
#### Magnetic North and South Poles

- The Earth acts as one big magnet. The Earth consists of a solid iron core surrounded by an ocean of hot, liquid metal (Nickel & Iron).
- The liquid metal that flows in Earth's core generates electric currents, which in result creates Earth's Magnetic Field.
- Magnetic Poles are dynamic or move around with respect to the changing magnetic field of Earth.
- A compass needle always points to the Magnetic North Pole but that does not hold true for Geographic North Pole as well.
- Magnetic variance, or declination, is the difference between geographic north and magnetic
- The phenomenon called 'Aurora' is unique to magnetic poles. Auroras are dramatic & beautiful lights that appear when solar radiation bounces off the Earth's magnetic field. In the North Pole, this phenomenon is named Aurora Borealis. In the South Pole, it is Aurora Australis.

#### What is the issue now?

- Magnetic North Pole (AKA – North Dip Pole) was discovered first in 1831 on Ellesmere Island in Northern Canada.
- Since then, the magnetic north pole has been moving hundreds of miles across the Canadian Arctic towards Russia.

- It has now been found that the pace of the drifting has suddenly increased quite significantly. It has been moving from around 14-15 km a year until the 1990s to around 55 km per year in the past few years.
- Scientists believe that the shift can be attributed to the deeply embedded hydro magnetic waves, the movement of the liquid metal ocean to Earth's core, climate change, or a combination of all these factors.
- This rapid movement of magnetic pole led researchers to update the World Magnetic Model (WMM) that tracks this movement.



### **What are the World Magnetic Model (WMM) and its uses?**

- World Magnetic Model (WMM) are the charts used to convert between compass measurements of magnetic north and true north (geographic north).
- Researchers from the US's National Oceanic and Atmospheric Administration (NOAA) maintain the WMM.
- WMM can be found in the navigation systems of ships and airplanes as well as geological applications such as drilling and mining.
- It is also a part of map applications in smart phones like Google Maps App. It is used in surveying, mapping, satellite/antenna tracking, and air traffic management
- It is also crucial for militaries for ring their missiles accurately or for other purposes.

### **Is the Earth's Magnetic Field going to be reversed?**

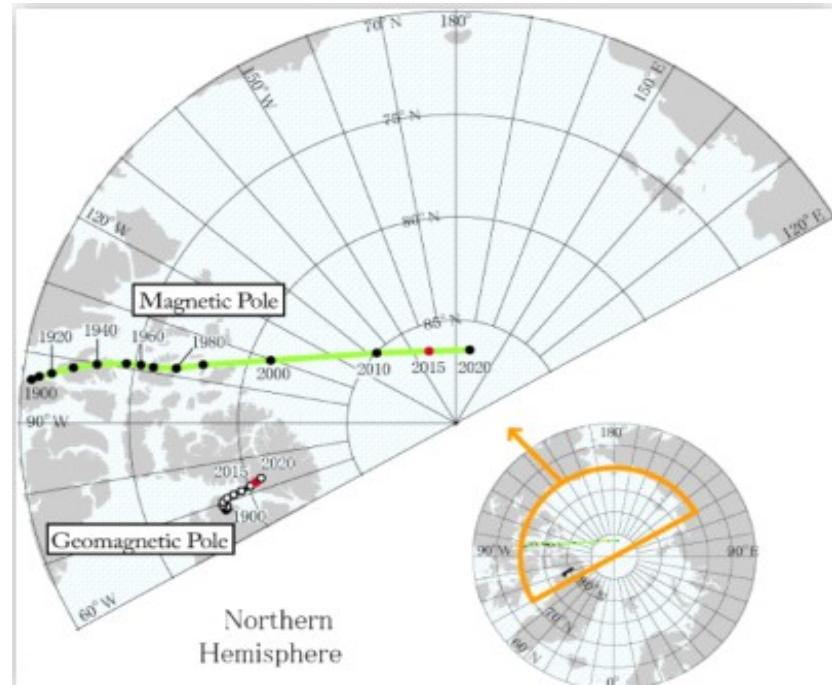
- In recent times, scientists have predicted that Earth's magnetic field could be moving towards a 'flip' i.e., a shift in which the magnetic south pole would become magnetic north and vice versa. However, there is no evidence exist that such a flip is imminent.
- Geologists can interpret magnetic minerals in rocks across the world to identify the history of magnetic reversals of the earth.
- Accordingly, Earth's magnetic poles have flipped many times in its history, with the last reversal happened around 7,80,000 years ago and 183 times in the last 83 million year

### **What are the impacts of the reversal of Earth's magnetic field?**

- Some researchers imply that if the poles do flip, it could create catastrophic impacts, It could leave life at the surface exposed to higher

amounts of solar radiation as Earth's magnetic field acts as a shield from the direct impact of solar radiation.

- Even with Earth's strong magnetic field today, we are still vulnerable to solar/geomagnetic storms that can impact our electricity-dependent society causing power outages.
- The rapid fluctuations in the number of cosmic rays hitting the atmosphere directly alter the amount of cloud covering the planet. However, others claim that the flipping won't be a catastrophic end of the world scenario.
- From studying the fossil records, there is no proof that a magnetic field reversal causes increased extinctions, volcanic activity, etc.
- It appears that some birds and some animals like whales use Earth's magnetic field for migration and finding directions. Since geomagnetic reversal takes thousands of years, they could well adapt to the changing magnetic environment or develop different methods of navigation.
- The phenomena occurring inside the earth cannot be studied directly or through computer modelling due to the extremely hot temperatures.
- Hence the causes for the rapid movement of the pole are uncertain yet. However, the shifting of the magnetic north pole would provide some new insights into the phenomena of the interior of the earth.



## International Hydrographic Organisation (IHO)

- Is an intergovernmental consultative and technical organization that was created in 1921 to support the safety of navigation and the protection of the marine environment?
- India is also a member of IHO.

### Objectives of the organisation are:

- Coordination of the activities of national hydrographic oceans
- To bring about uniformity in nautical charts and documents
- The adoption of reliable and effective methods of carrying out and exploiting hydrographic surveys
- Development of sciences in the field of hydrography and the techniques employed in descriptive oceanography
- IHO enjoys observer status at the United Nations.

## 14. Rushikulya waits for Olive Ridleys

### In news:

- Even after waiting for almost a month, Olive Ridley turtles have not yet arrived for mass nesting at Odisha's Rushikulya rookery and Devi river mouth.
- The reasons are not fully understood yet.
- Mass nesting has already occurred at the Gahirmatha coast of the State.

### Do you know?

- Only two species of marine turtles display a unique mass nesting behavior. This behavior is known as an 'arribada'.
- This reproductive phenomenon was first observed by the scientific community in 1961.
- By producing large numbers of offspring most organisms like sea turtles can insure their survival even after predation occurs.

**Arribada-** Spanish term meaning arrival; a mass nesting behavior

- An arribada is a unique nesting phenomenon common to both the Olive ridley and the Kemp's ridley sea turtle.
- The Olive ridley is endemic to the Pacific coasts of Mexico, Central America, and India. It is known to be a nocturnal nester.
- Olive Ridley: IUCN Status-Vulnerable
- The Kemp's ridley is endemic to the Gulf of Mexico. It ranges from Galveston, Texas to Tampico, Mexico. Kemp's ridley turtles display unique diurnal arribadas.

### Major nesting sites in Odisha:

- The Gahirmatha beach
- The mouth of the Debi river
- The Rushikulya rookery coast in the Ganjam district

The Gahirmatha beach is the largest mass nesting site for olive ridley turtles along the Indian coastline, followed by the rookery at the mouth of the Rushikulya river.

## 15. India's carbon dioxide emissions up 5%

### Context:

According to a report released by International Energy Association, China, U.S. & India together accounted for nearly 70% of the rise in energy demand.

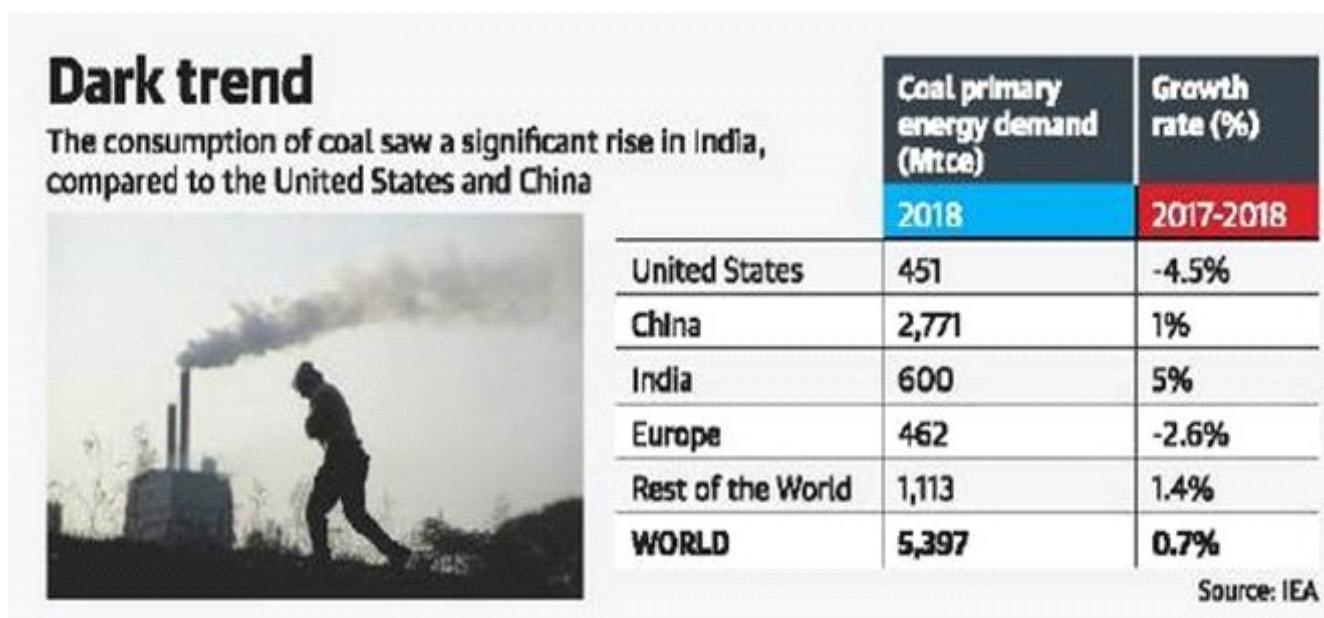
- India emitted 2,299 million tonnes of carbon dioxide in 2018, a 4.8% rise from last year. India's emissions growth this year was higher than that of the United States and China — the two biggest emitters in the world — and this was primarily due to a rise in coal consumption. China, the United States, and India together accounted for nearly 70% of the rise in energy demand.

## Report Findings:

- India's per capita emissions were about 40% of the global average and contributed 7% to the global carbon dioxide burden. The United States, the largest emitter, was responsible for 14%.
- As per its commitments to the United Nations Framework Convention on Climate Change, India has promised to reduce the emissions intensity of its economy by 2030, compared to 2005 levels.
- It has also committed to having 40% of its energy from renewable sources by 2030 and, as part of this, install 100 GW of solar power by 2022.
- India's energy intensity improvement declined 3% from last year even as its renewable energy installations increased 10.6% from last year.
- Global energy consumption in 2018 increased at nearly twice the average rate of growth since 2010, driven by a robust global economy and higher heating and cooling needs in some parts of the world. Demand for all fuels increased, led by natural gas, even as solar and wind posted double digit growth.
- Higher electricity demand was responsible for over half of the growth in energy needs. Energy efficiency saw lacklustre improvement.
- As a result of higher energy consumption, carbon dioxide emissions rose 1.7% last year and hit a new record, the authors of the report said in a press statement.
- The United States had the largest increase in oil and gas demand worldwide. Gas consumption jumped 10% from the previous year, the fastest increase since the beginning of IEA records in 1971.

## Conclusion:

India says it will cost at least \$2.5 trillion (<sup>1</sup> 150 trillion approx.) to implement its climate pledge, around 71% of the combined required spending for all developing country pledges.



## Science and Technology

### 16. ASAT Missile Test

#### Context:

India has successfully tested the anti-satellite (ASAT) missile capability under **Mission Shakti**.

- Anti-satellites or ASATs are space weapons designed to disable or destroy satellites for strategic military purposes. India tested this missile to target live satellite on low earth orbit (LEO). Most military satellites orbit up to 2,000 km above the earth's surface on LEO.
- However, no country has used ASAT system in warfare till now. Several nations have shot down their own (defunct) satellites to demonstrate their ASAT capabilities in a show of force.
- As India showed its military might in space, it became part of the elite space power club. Only three countries — US, Russia and China — have done so before India.

#### What are anti-satellite (ASAT) weapons?

- They are missile-based systems to attack moving satellites. So far the United States, China and Russia were the only ones who've reported the ability to shoot down space objects from ground or airborne sources.
- The development of such systems has a long history fuelled by the Cold War between the United States and the former Soviet Union with a waxing or waning of funding.
- There are different kinds of systems those that can be launched from the ground or those vaulted from planes.
- In the Cold War/Space Race era, 1985 was the last time that the United States had used an anti-satellite system to destroy its P-781 satellite that had instruments aboard to study solar radiation.



## 17. Ransomware (gandcrab): way ahead for India

### Ransomware:

- Ransomware is a kind of malware (software that damages the functions or gains unauthorised access to a computer system).
- It is used to encrypt important documents or files within a system (Crypto ransomware) or simply lock the original user out of the system (Locker ransomware).
- The user is then asked for a ransom in return for decrypting the files. Once the ransom is paid within a stipulated period, then the system is either unlocked or the system's contents are deleted or the system is entirely corrupted.
- Unlike other cyber-attacks, in this form of attack, the user is notified of the attack.
- Ransomware spreads easily when it encounters unpatched or outdated software.

### Trends in Ransomware:

- Initially, ransomware attacks followed a pattern akin to fire and forget, that is, it was used for small scale extortion from individuals.
- Now, however, the pattern has shifted to more focused and targeted attacks for larger returns like targeting the server of an organisation.
- The effect is to turn entire organisations into victims rather than individual users, and the pay-off for the extra effort involved in performing this kind of an attack is often huge.

### History:

- The first ever recorded use of ransomware occurred as early as 1989 in the form of the AIDS Trojan,
- However, this method gained prominence only after the unleashing of the WannaCry Ransomware in 2017. This was a massive attack that affected more than 200,000 systems in some 150 countries and accounted for a loss of several million dollars.
- Since then, the use of ransomware attacks has seen an upward trend for committing cyber-crime.
- Many new, better and customized ransomware are coming to the forefront. Those in the active stage include GandCrab and ZZZ.

### GandCrab:

- GandCrab was first spotted near the end of January 2018 and since then its attacks have been growing at a rapid pace.
- It is generally distributed by “phishing emails” (an attachment in a malicious email gives the ransomware the required information) and “exploit kits” (any security holes that are detected by hackers in any software installed in a system can deliver ransomware to the system).

- Following infiltration, ransomware starts collecting information like username, PC name, OS (Operating System) and other such data.
- The virus also creates a unique ransom ID and starts encrypting files stored on the system. As a result, the user is no longer able to access encrypted files without a key which cannot be obtained without a ransom.

### **Impact of GrandCrab on India:**

- In the year 2018, GandCrab attackers were able to infect more than 50,000 victims and generate more than USD 600,000 in ransom payments from victims.
- Though India had its fair share of ransomware attacks, however, there was an increase in the activity of the GandCrab Ransomware attacks particularly in the states of Gujarat, Telangana, Uttar Pradesh and Kerala.

### **Way ahead:**

For now the only plausible option is prevention and risk management in the following ways:

- Regularly patching and updating software released by companies.
- Any important data should be spread across networks with appropriate backups, thus maintaining redundancy.
- Stronger passwords and two-prong authentication should be ensured.
- Continuous real-time monitoring within the system and firewalls to protect against any such attacks.
- In case of an attack, affected network must be isolated to prevent the virus from spreading.

## **18. Chinook helicopters**

### **Context:**

The Indian Air Force (IAF) has formally inducted the Chinook heavy-lift helicopters made in the US. The Chinook helicopters ordered from Boeing in September 2015, were commissioned into the IAF's 126 Helicopter Unit.

### **About:**

- The CH-47F (I) Chinook is an advanced multi-mission helicopter that will provide unmatched strategic



airlift capability to the Indian armed forces across the full spectrum of combat missions.

- With capability of carrying around 10 tonnes of load, these helicopters are majorly used for artillery, battlefield resupply and transportation of troops.
- These are also used for humanitarian and disaster relief operations such as transportation of relief supplies and mass evacuation of refugees.
- Chinooks have a unique twin engine and tandem rotor design, one of the most visibly recognised symbols of the American armed forces.
- The Chinook helicopter is used by 18 other defence forces around the world.

## A GAME CHANGER FOR IAF

### THE CHINOOK REPLACES THE

Russian Mi-26 in the heavy lift class – the first helicopter category in which US has supplanted Russia's dominance in India

### AFTER THE INDUCTION OF

Boeing's Apache AH-64E attack helicopters later this year, Russian Mi-35s will start getting retired

### THEN, IF THE SIKORSKY MH-60

Romeo is chosen as expected as the Navy's new multi-role helicopter, Russia's Kamov-28s and Kamov-31s will be shut out from a third category

### Its role:

The massive helicopter can carry 9.6 tons of cargo, including heavy machinery, artillery guns and even light armored vehicles to high altitude. Suited for mountain operations, the Chinook is highly maneuverable and can get in and out of tight valleys. Its missions range from ferrying troops to disaster relief operations.

### What it means for India?

The long pending acquisition wills not only augment air force's heavy lift capability for military tasks but is a vital addition for the construction of strategic roads and infrastructure projects on the border. The Border Roads Organization has been waiting in particular for the Chinook to complete road building projects in the North East that have been stuck for years for want of a heavy lift chopper that can carry material and equipment through narrow valleys.

## 19. Grapes 3

### Context:

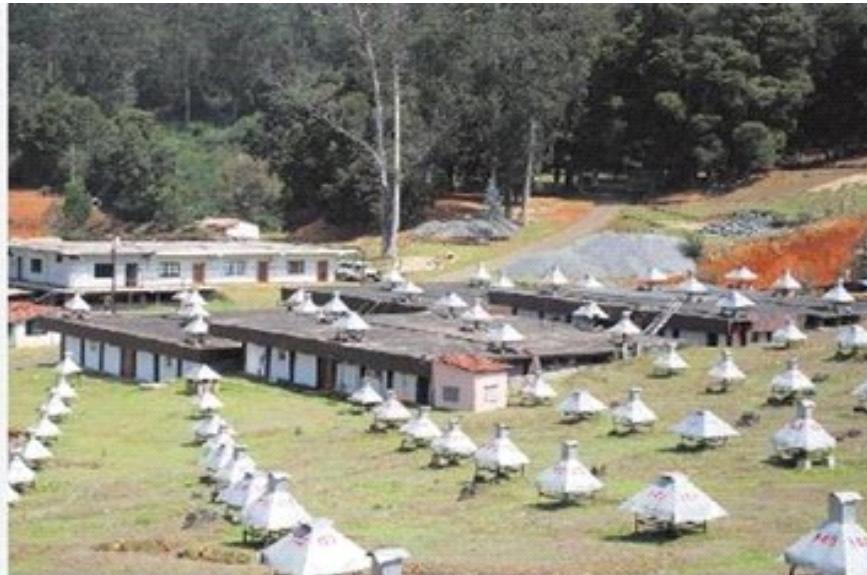
For the first time in the world, researchers at the GRAPES-3 muon telescope facility in Ooty have measured the electrical potential, size and height of a thundercloud that passed overhead on December 1, 2014.

- At 1.3 gigavolts (GV), this cloud had 10 times higher potential than the previous record in a cloud. This is not because clouds with such high potentials are a rarity, but rather, because the methods of detection have not been successful so far.

## Gauging a thundercloud

Using GRAPES 3 facility muons were studied to understand the thundercloud properties

- Elementary particle muons are produced through interaction of cosmic rays with atoms in atmosphere
- Energy of muons changed on passing through thunderclouds
- Muon intensity variation measured was related to thundercloud potential



The facility located in Ooty.

### About GRAPES-3 (Gamma Ray Astronomy PeV EnergieS phase-3).

The GRAPES-3 experiment located at Ooty, India. It started as a collaboration of the Tata Institute of Fundamental Research, Mumbai, India and the Osaka City University, Osaka, Japan. At present many institutions from India and Japan are in collaboration.

**Objective of experiment:** It aims to probe acceleration of cosmic rays in the following four astrophysical settings:

- ~100 MeV in atmospheric electric fields through muons,
- ~10 GeV in Solar system through muons,
- ~1 PeV in our galaxy through nuclear composition of cosmic rays,
- ~100 EeV in nearby universe through measurement of diffuse  $\alpha$ -ray flux.

#### Features:

- The energy threshold of muon detectors is 1 GeV.
- The observations is done using ~ 400 plastic scintillators and a 560 m<sup>2</sup> area muon detector. The scintillators detect charged particles contained in extensive air showers produced by interaction of high energy cosmic rays in the atmosphere.

**Muons:** Muons and other particles are produced when cosmic rays bombard air particles surrounding the earth. The muons produced can have positive or negative charge. When a positively charged muon falls through a cloud, it loses energy. If its energy falls below 1 giga electron volt (GeV), which is the threshold of detection of the GRAPES-3 muon telescope, it goes undetected.

## 20. Levitation using only light

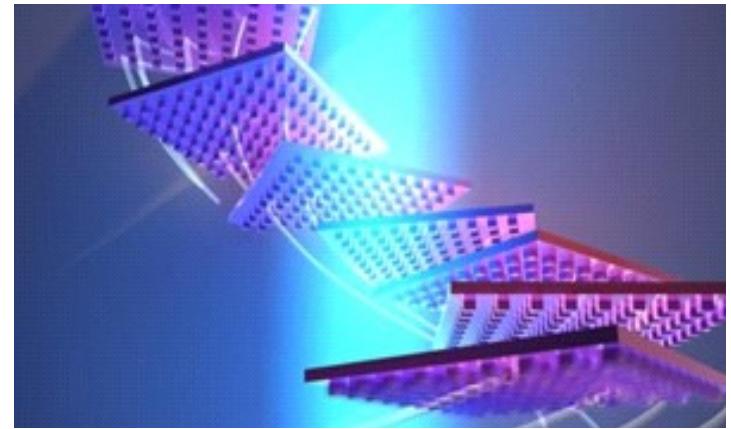
Scientists have designed a way to levitate and propel objects using only light, by creating nanoscale patterns on the objects' surfaces.

## Background:

- Decades ago, the development of optical tweezers enabled scientists to move and manipulate tiny objects, like nanoparticles, using the radiative pressure from a sharply focused beam of laser light. **This work formed the basis for the 2018 Nobel Prize in Physics.**
- However, optical tweezers are only able to manipulate very small objects and only at very short distances.

## Recent development:

- With the new research, published in the journal *Nature Photonics*, objects of many different shapes and sizes — from micrometres to metres — could be manipulated with a light beam.
- The key is to create specific nanoscale patterns on an object's surface. This patterning interacts with light in such a way that the object can right itself when perturbed, creating a restoring torque to keep it in the light beam.
- Thus, rather than requiring highly focused laser beams, the objects' patterning is designed to “encode” their own stability. The light source can also be millions of miles away.



## Potential applications:

- Though still theoretical, the work is a step toward developing a spacecraft that could reach the nearest planet outside of our solar system in 20 years, powered and accelerated only by light.
- The technology could also be used to enable rapid manufacturing of even smaller objects, like circuit boards.

## Important Info :

### Levitation?

- Levitation is the process by which an object is held aloft, without mechanical support, in a stable position.
- Levitation is accomplished by providing an upward force that counteracts the pull of gravity, plus a smaller stabilizing force that pushes the object toward a home position whenever it is a small distance away from that home position.
- The force can be a fundamental force such as magnetic or electrostatic, or it can be a reactive force such as optical, buoyant, aerodynamic, or hydrodynamic.

## Miscellaneous

### 21. Global Energy Transition Index

#### **Context:**

India has moved up two places to rank 76th on a global energy transition index, which has ranked 115 economies on how well they are able to balance energy security and access with environmental sustainability and affordability.

- Sweden remains on the top on this annual list compiled by **Geneva-based World Economic Forum (WEF)** and is followed by Switzerland and Norway in the top three.

#### **India's Stand:**

- India has moved up two places to rank 76th. While India has scored low in terms of system performance, it ranks higher in readiness to adapt to future energy needs.
- It said India is amongst the countries with high pollution levels and has a relatively high CO<sub>2</sub> intensity in its energy system.
- While India has scored low in terms of system performance (ranking 97 and 86, respectively), it ranks considerably higher when it comes to readiness (45 and 61, respectively). Overall, India has moved up two places from 78th last year.
- China is ranked even lower than India at 82nd position, though it ranks very high at seventh place in the world for regulation and political commitment.
- Despite its low ranking, India is the second best in the BRICS block of emerging economies, with Brazil being the best at 46th place globally. However, India is the only amongst the five economies to improve its rank since last year.

### 22. Jodi sankha

Conch, the election symbol of the Biju Janata Dal, has become a catalyst for promotion of a traditional folk dance form named ‘Jodi Sankha’ from Ganjam district.

#### **About:**

- **Region:** Jodi Sankha is a unique folk dance native to Ganjam District of Orissa.
- **Features:**
  - Jodi Sankha, which literally means Double Conch, is a combined presentation of rural music along with Badya and Nrutyam.
  - Most noteworthy part is the harmony between the modulation of the conch and the physical movements of the artists.

- This dance form had a martial arts beginning as it needs high stamina.
- **Performers:** It is performed mainly by non-Aryans embellished in colorful costumes.
- **Instruments:** The main accompanying instruments include Changpu, Baja and Mahuri; combined with the thrills of the conch present an emotional Orchestra of rural music.
- **Events during which performed:** Sound of conch is considered auspicious and these troupes traditionally performed at religious functions, marriages and other processions.



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## Abhyasa Program Structure

	Multiple Choice Questions (PRELIMS)	Descriptive Questions (MAINS)	Total Marks
<b>Daily Test</b>	<b>10</b> (10*1 = 10 marks)	<b>1</b> (1*10= 10 Marks)	<b>20</b>
<b>Weekly Test</b>	<b>20</b> (20*1 = 20 marks)	<b>2</b> (2*10= 20 Marks)	<b>40</b>
<b>Fortnightly Test</b>	<b>30</b> (30*1 = 30 marks)	<b>3</b> (3*10= 30 Marks)	<b>60</b>
<b>Monthly Test</b>	<b>50</b> (50*1 = 50 marks)	<b>5</b> (5*10= 50 Marks)	<b>100</b>
<b>3 Months Test</b>	<b>100</b> (100*1 = 100 marks)	<b>10</b> (10*10= 100 Marks)	<b>200</b>
<b>Total Questions</b>	<b>4250+</b>	<b>500+</b>	

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Cleared IAS 2016 & 2017

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# OUR RESULTS - 2017

62



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83



Srivastava  
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100



Mourya  
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105



Mishra  
HT No : 262146

144



149



187



295



296



360



412



417



474



480



548



614



673



713



726



758



761



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768



769



828



832



872



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