My Notes....

NATIONAL

INDIA JOINS ALLIANCE FOR SMART CITY TECHNOLOGIES

India has joined the league of 15 of the world's leading city networks and technology governance organisations that will work towards advancing the responsible and ethical use of smart city technologies. The G20 Global Smart Cities Alliance on Technology Governance will create global norms and policy standards for the use of connected devices in public spaces, a World Economic Forum (WEF) release said.

What

1. The Global Smart Cities Alliance's founding set of institutional partners include the presidents and host nations of the Group of 20 (G20) in 2019 and 2020; Japan and the Kingdom of Saudi Arabia; the Smart City Mission of India; Cities for All; Cities Today Institute; Commonwealth Local Government Forum; Commonwealth Sustainable Cities Network among others.

2. Smart city technologies offer huge promise, but they can be a Pandora's box. Today's announcement is a critical first step to accelerate global best practices, mitigate risks, and foster greater openness and public trust regarding the collection of data in public spaces, said, the World Economic Forum (WEF).

3. Smart city technologies can help decrease traffic congestion, combat crime, improve resilience during natural disasters and reduce greenhouse emissions. Without proper governance, these technologies pose significant risk, notably to privacy and security.

4. India is at the forefront of this urban transformation and is committed to ensuring that our cities develop in a way that is smart and sustainable.

> **Flashback**
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> 1. Established in June 2019, in conjunction with the G20 Summit in Osaka, Japan, the Alliance comprises 15 of the world's leading city networks and technology governance organisations.
>
> 2. The partners represent more than 2, 00,000 cities and local governments, leading companies, start-ups, research institutions, and civil society organisations. The World Economic Forum serves as the secretariat.
>
> 3. The new global policy standards for privacy, security and sustainability of smart technologies will be rolled out in advance of 2020 G20 Summit in Riyadh, Saudi Arabia.
>
> 4. The first policy design workshops with city leaders will be held in November 2019 in conjunction with the Smart City Expo World Congress in Barcelona, Spain.

INDIA SLIPS IN GLOBAL COMPETITIVENESS INDEX

India has moved down 10 places to rank 68th on an annual global competitiveness index, largely due to improvements witnessed by several other economies, while Singapore has replaced the US as the world's most competitive economy. India, which was ranked 58th in the annual Global Competitiveness Index compiled by Geneva-based World Economic Forum (WEF), is among the worst-performing BRICS nations along with Brazil (ranked even lower than India at 71st this year).

What

1. The WEF said on 9 October 2019 India ranks high in terms of macroeconomic stability and market size, while its financial sector is relatively deep and stable

despite the high delinquency rate, which contributes to weakening the soundness of its banking system.

2. India is ranked also high at 15th place in terms of corporate governance, while it is ranked second globally for shareholder governance. In terms of the market size, India is ranked third, while it has got the same rank for renewable energy regulation.

3. Besides, India also punches above its development status when it comes to innovation, which is well ahead of most emerging economies and on par with several advanced economies.

4. But, these positive metrics contrast with major shortcomings in some of the basic enablers of competitiveness in case of India, while flagging limited ICT (information, communications and technology) adoption, poor health conditions and low healthy life expectancy.

5. The WEF said the healthy life expectancy, where India has been ranked 109th out of total the 141 countries surveyed for the index, is one of the shortest outside Africa and significantly below the South Asian average.

6. Besides, India needs to grow its skills base, while its product market efficiency is undermined by a lack of trade openness and the labour market is characterised by a lack of worker rights' protections, insufficiently developed active labour market policies and critically low participation of women.

HOW INDIA HAS FARED
OVERALL RANKING IN GLOBAL COMPETITIVENESS INDEX

63 2017	58 2018	68 2019

RANKING ACROSS PARAMETERS

2018		2019
47	Institutions	59
63	Infrastructure	70
117	ICT adoption	120
49	Macro-economic stability	43
108	Health	110
96	Skills	107
110	Product market	101
75	Labour market	103
35	Financial system	40
3	Market size	3
58	Business dyanamism	69
31	Innovation capability	35

7. With a ratio of female workers to male workers of 0.26, India has been ranked very low at 128th place. India is also ranked low at 118th in terms of meritocracy and incentivisation and at 107th place for skills.

8. In the overall ranking, India is followed by some of its neighbours including Sri Lanka at 84th place, Bangladesh at 105th, Nepal at 108th and Pakistan at 110th place.

9. The Global Competitiveness Index (GCI), which was launched in 1979, maps the competitiveness landscape of 141 economies through 103 indicators organised into 12 pillars.

10. Singapore has become the world's most competitive economy in 2019, pushing the US to the second place. Hong Kong SAR is ranked 3rd, Netherlands is 4th and Switzerland is ranked 5th.

11. China is ranked 28th (the highest ranked among the BRICS) while Vietnam is the most improved country in the region this year at 67th place.
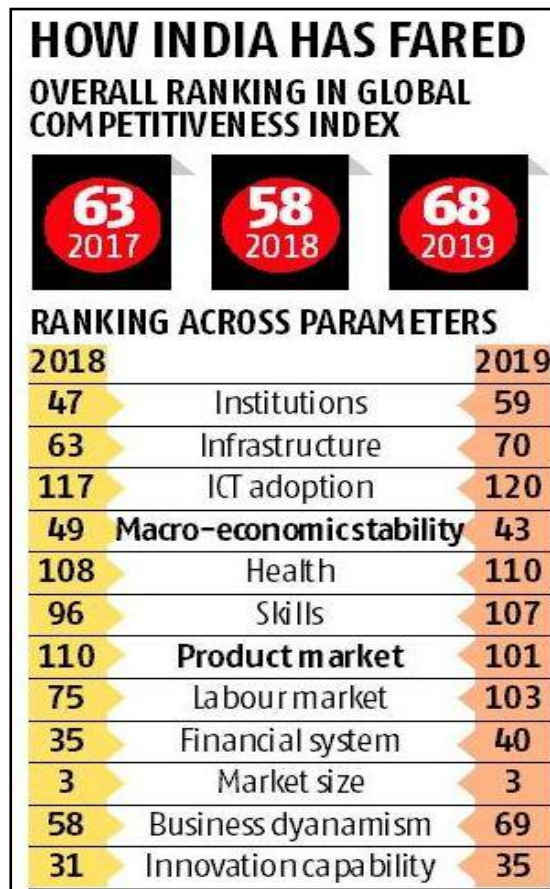
INDIA GETS 4 UNESCO AWARD

In a major recognition to Mumbai's heritage conservation movement, three city landmarks -- Flora Fountain, Gloria Church at Byculla and Keneseth Eliyahoo Synagogue at Kala Godha -- have won **this year's UNESCO Asia**-Pacific Awards for Cultural Heritage Conservation. The UNESCO Asia-Pacific Awards for Cultural Heritage

Conservation awards were announced at a ceremony held in Penang, Malaysia, marking 20 years since its institution. The four winners from India, include one from Ahmedabad -- Award of Distinction for Vikram Sarabhai Library, Indian Institute of Management (IIM); and three from Mumbai -- Award of Merit for Keneseth Eliyahoo Synagogue and Our Lady of Glory Church; while Honourable Mention for Flora Fountain.

What

1. Flora Fountain restored by conservation architect Vikas Dilwari and his team received the award under the category "Honourable Mention".

2. The "Award of Merit" were given to the Jewish Synagogue restored by Abha Narain Lambah and Gloria Church restored by David Cardoz and and Ainsley Lewis.

3. The Vikram Sarabhai Library, Indian Institute of Management, Ahmedabad, received the "Award of Distinction" for its restoration architect Brinda Somaya. The awards were announced in Penang, Malaysia on 14 October 2019.

4. The UNESCO Asia-Pacific Awards for Cultural Heritage Conservation programme recognises the efforts of private individuals and organizations that have successfully restored and conserved structures and buildings of heritage value in the region.

5. By recognizing private efforts to restore and adapt historic properties, the awards aim to encourage other property owners to undertake conservation projects within their communities, either independently or by seeking public-private partnerships."

6. The renewal of the historic Tai Kwun - Centre for Heritage and Arts in Hong Kong received the Award of Excellence, the highest award among all categories.

7. Sixteen projects from five countries - Australia, Bhutan, China, India and New Zealand - have been recognized by the international Jury of conservation experts in this year''s Awards.

8. The jury met in August to review 57 entries from 14 countries across the Asia-Pacific region, UNESCO Asia-Pacific said in a statement.

All Awardees

Award of Distinction

1. Keyuan Garden, Suzhou, China

2. Vikram Sarabhai Library, Indian Institute of Management, Ahmedabad, India

3. Nelson School of Music, Nelson, New Zealand

Award of Merit

1. Tseto Goenpa, Paro, Bhutan

2. **Guyue Bridge, Chi'an Town, Zhejiang,** China

3. Keneseth Eliyahoo Synagogue, Mumbai, India

4. Our Lady of Glory Church, Mumbai, India

5. Lyttelton Timeball Station, Christchurch, New Zealand

Honourable Mention

1. The 5s Classroom, Preshil The Margaret Lyttle Memorial School, Kew, Australia

2. Westpac Long Gallery, Australian Museum, Sydney, Australia

3. Liddell Bros. Packing Plant, Wuhan, China

Flashback

1. This year marked 20 years of the UNESCO Awards for Cultural Heritage Conservation, which was conceived in Penang, Malaysia, during UNESCO's landmark "Economics of Heritage" regional conference in 1999.

2. In celebration of the 20th anniversary, UNESCO co-organised the Asia-Pacific Heritage 20/20 Forum and 2019 Awards Ceremony with Think City in Penang.

4.   Flora Fountain, Mumbai, India

New Design in Heritage Contexts

1.   Joan Sutherland Theatre Passageway and Lift, Sydney Opera House, Sydney, Australia

2.   Dry Pit Latrine in Jiaxian Ancient Jujube Garden, Nihegou Village, Shaanxi, China

3.   The Mills, Hong Kong SAR, China

'ANCIENT RIVER' IN UTTAR PRADESH EXCAVATED

The Union Water Ministry has excavated an old, dried-up river in Prayagraj (formerly Allahabad) that linked the Ganga and Yamuna Rivers. The aim is to develop it as a potential groundwater recharge source, according to officials at the National Mission for Clean Ganga (NMCG), a body under the Union Jal Shakti Ministry **that coordinates the cleaning of the Ganga. The** "ancient buried river" **as it was** described at a conference organised by the Ministry, is around 4 km wide, 45 km long and consisted of a 15-metre-thick layer buried under soil.

What

1.   The discovery was made last December by a team of scientists from the CSIR-NGRI (National Geophysical Research Institute) and the Central Groundwater Board during a helicopter-borne geophysical survey covering the Prayagraj and Kaushambi region in Uttar Pradesh. These paleochannels reveal the course of rivers that have ceased to exist.

River unearthed

A team of scientists have discovered an "ancient buried river" that links the Ganga and the Yamuna. The map shows the possible course of the paleochannel

2.   The newly discovered river, according to Mr. Mathuria, was a "buried paleochannel that joins the Yamuna river at Durgapur village, about 26 km south of the current Ganga-Yamuna confluence at Prayagraj.

3.   The **genesis of the palaeochannel's discovery followed a 2016 report of a seven**-member committee, headed by Professor K.S. Valdiya of the Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), commissioned by the Water Resources Ministry.

4.   This report concluded that evidence from palaeochannels suggested that the mythological Saraswati river did indeed exist.
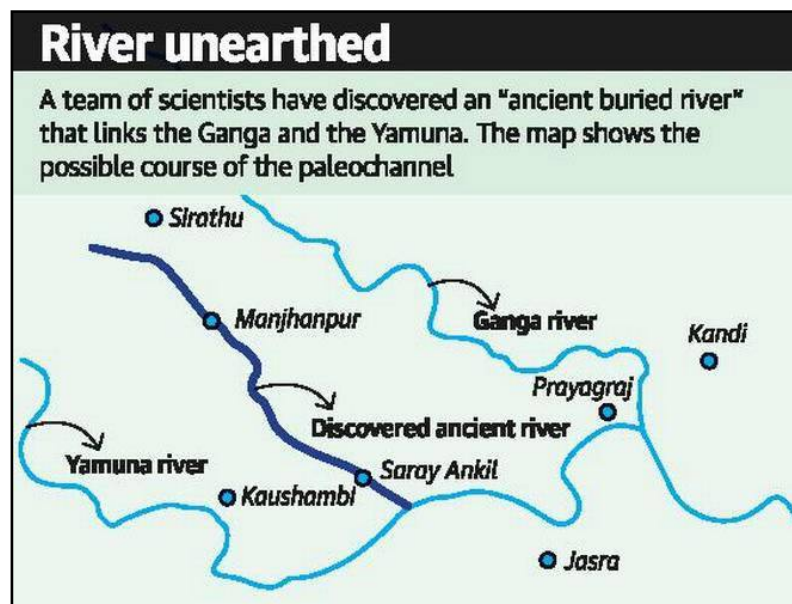
'DHRUV' SCHEME KICKED OFF

Union HRD minister Ramesh Pokhriyal kicked off the Prime Minister Innovative Learn**ng Programme "Dhruv"** at the Indian Space Research Organisation (Isro) head office in Bengaluru under which 60 talented students selected from science, mathematics and performing arts streams will undergo a 14-day programme with an objective to enrich their skills and knowledge and realise their full potential.

What

1. The programme that started will now conclude at IIT-Delhi on October 23. The selected students will be mentored by renowned experts in their respective fields in different centres of excellence across the country.

2. The programme represents the vision of PM Narendra Modi, who has expressed his **happiness at its launch and "Dhruv", which will prove to be a turning point for** students as well as society, reflects the **true spirit of "EK Bharat, Shreshth** Bharat".** These students will now act as a beacon for 33 crore students of the country.

3. Expressing happiness that the event was launched at the space agency office, the Isro chairman said each student will be **christened 'Dhruv Tara'.**

4. Indian space programme reached unexpected heights due to the bright young minds over the last 60 years, Dhruv Taras are also expected to make similar contributions.

5. The HRD minister said this is an initiative towards creating future leaders for India to realise the vision of a $5-trillion economy and provide solution to climate change. These students will brainstorm on challenges like global warming, climate change, glacial meltdown, water conservation and agricultural problems.

6. On the lines of Dhruv initiative, Isro is also setting up space technology incubation centres and space research centres across the country.

7. The space agency, in collaboration with the Tripura government, has already set up an incubation centre in Agartala. The remaining centres are being set up in Jalandhar, Bhubaneswar, Nagpur, Indore and Tiruchirapalli.

8. These centres will promote start-ups and give thrust to innovations and research in space technologies. The centres will help start-ups develop prototypes of components in space systems in partnership with the industry. Isro will evaluate these prototypes and buy them depending upon their worthiness.

SPECIAL MARRIAGE ACT TO BE APPLICABLE TO SIKKIM

President Ram Nath Kovind has approved the extension of the Special Marriage Act, 1954, under which inter-religion weddings can be registered, to Sikkim. Punitive provisions for the violation of the Act will also come into force in the Northeastern state with the publication of a notification by the Union home ministry.

What

1. In exercise of the powers conferred by clause (n) of article 371F of the Constitution, the President hereby extends the Special Marriage Act, 1954 (43 of 1954) to the State of Sikkim, subject to the certain modifications, the home ministry notification said.

2. The Special Marriage Act provides for a special form of marriage in certain cases, for the registration of such and certain other marriages and for divorce.

3. If those marrying under the Act have a living spouse, shall be punished with imprisonment which may extend to seven years, and shall also be liable to fine.

4. Anyone marrying under the Act if try to conceal a former marriage from the person with whom subsequent marriage is contracted, shall be punished with imprisonment which may extend to 10 years, and shall also be liable to fine.

> Flashback
>
> 1. The Special Marriage Act, 1954 is an Act of the Parliament of India enacted to provide a special form of marriage for the people of India and all Indian nationals in foreign countries, irrespective of the religion or faith followed by either party.
>
> 2. The Act originated from a piece of legislation proposed during the late 19th century. Marriages solemnized under Special Marriage Act are not governed by personal laws.

INTERNATIONAL

INTERNATIMOU FOR COASTAL SURVEILLANCE SYSTEM RADAR

India and Bangladesh inked a important MoU that will enable Delhi to set up a coastal surveillance system radar in Bangladesh besides deciding to further expand connectivity network corridors boosting Delhi's Indo-Pacific strategy with Dhaka emerging as a key pillar in that vision. After the summit between PMs Narendra Modi and Sheikh Hasina in Delhi the two sides signed seven pacts.

What

1. The two leaders also inaugurated through video-link three bilateral development partnership projects a) Import of Bulk LPG from Bangladesh b) Inauguration of Vivekananda Bhaban (students hostel) at Ramakrishna Mission, Dhaka c) Inauguration of Bangladesh-India Professional Skill Development Institute (BIPSDI) at the Institution of Diploma Engineers Bangladesh (IDEB), Khulna

2. Both Prime Ministers welcomed the initiatives for development of closer Maritime Security Partnership, and noted the progress made in finalization of an MoU on Establishment of Coastal Surveillance Radar System in Bangladesh and encouraged both sides for early signing of the MoU.

3. India has provided such systems to Mauritius, Seychelles, Maldives and planning one in Myanmar. The coastal surveillance system will pave way for Indo-Bangladesh White Shipping Agreement in future. This will be useful amid growing terror threats via seas and growing presence of China in the Bay of Bengal region.

4. Both sides recognized that increasing connectivity through air, water, rail, road offers mutually beneficial opportunity for enhancing economic cooperation between Bangladesh and the North Eastern States of India and beyond.

5. Both leaders underlined the immense potential of movement of cargo using the inland water and coastal shipping trade. Towards this, they welcomed the decision to operationalize the Dhulian-Gadagari-Rajshahi-Daulatdia-Aricha Route (to and fro) and include Daudkandi-Sonamura Route (to and fro) under Protocol on Inland Water Transit and Trade.

6. Both Leaders directed the Technical Level Committee of the Joint Rivers Commission to expeditiously exchange updated data and information and prepare the draft framework of Interim Sharing Agreements for the six rivers, namely, Manu, Muhuri, Khowai, Gumti, Dharla and Dudhkumar and to firm up the draft framework of interim sharing agreement of Feni River.

INDIA WANTS DATA LOCALISATION IN RCEP

India has proposed locating computing facilities inside the country if it is meant to protect its essential security interests and national interests at the the ongoing negotiations of the proposed Regional Comprehensive Economic Partnership (RCEP) trade agreement. New Delhi also said that the participating countries may prevent cross-border transfer of information by electronic means, including personal information, only **where it is** "necessary to achieve a legitimate public policy objective" or "necessary, in the country's opinion, for the protection of its essential security interests or national **interests".**

What

1. **India's alternate proposal on the Asean Package** for the agreement's e-commerce chapter came on 11 October 2019 after 14 members of the 16-country RCEP including ASEAN opposed data localisation. China was not a proponent.

2. However, in the financial services chapter of the agreement, India is learnt to have agreed to financial data transfer in talks held in Vietnam in late September. It is

believed to have agreed that financial services companies will be allowed to move and store data of Indians abroad.

3. The proposal is crucial as the Reserve Bank of **India's (RBI)** in its April 2018 notification mandated **"all system** providers shall ensure that the entire data relating to payment systems operated by them are stored in a **system only in India".**

4. It later clarified that a copy of domestic data can be stored abroad in the case of cross-border transactions. The financial services agreement (FSA) will partly nullify that position.

5. Interestingly, although the FSA was negotiated by the RBI, the contact point for the FSA is the commerce ministry and not the central bank.

> **Flashback**
>
> 1. The Regional Comprehensive Economic Partnership (RCEP) is a proposed free trade agreement that is often characterised as a China-led response to the Trans-Pacific Partnership (TPP) put forward by the US.
>
> 2. The pact is currently being negotiated among the 10 Asean member states as well as Australia, China, India, Japan, New Zealand and South Korea.
>
> 3. RCEP negotiations were formally launched in November 2012 at the ASEAN Summit in Cambodia.
>
> 4. Taken together, the 16 countries negotiating the RCEP encompass about one-third of **global GDP and almost half the world's** population.
>
> 5. The pact aims to cover the trade in goods and services, as well as investment, intellectual property and dispute resolution.

6. In proposal, India also said that "no party shall have recourse to dispute settlement for any matter relating to electronic commerce arising under any of the chapters/ any provision in this agreement".

INDIA, CHINA INFORMAL SUMMIT CONCLUDE

Prime Minister Narendra Modi and Chinese President Xi Jinping concluded their informal summit in Mahabalipuram, outside Chennai, on 12 October 2019 with a "new beginning" for cooperation between the two countries. Modi, who held talks with Xi at Taj Fisherman's Cove in Kovalam, said the leaders have decided to "manage their differences prudently" and "will not let them become disputes".

Key Highlights

1. The meeting between the two leaders is a follow up to the inaugural summit which was held in Wuhan from April 27 to 28 last year.

2. Taking forward the Wuhan Spirit, the Mahabalipuram meet provide an opportunity to the Chinese President and PM Modi to continue their discussions on overarching issues of bilateral, regional and global importance and to exchange views on deepening India-China Closer Development Partnership.

3. As per the officials of both countries, the focus of the Modi-Xi informal summit was to move forward and make a new pathway of development notwithstanding sharp differences between the two countries over several contentious issues.

4. After detailed talks between PM Modi and Xi Jinping, PM Modi said that both the countries have developed strategic communications to give fresh momentum to the relation of both the countries.

5. India and China at their second informal summit held at the highest level discussed CBMs to address outstanding issues including boundary question, terrorism and trade deficit as the two sides decided to set up Minister level mechanism for trade partnership and visit by Defence Minister to China.

6. In pursuit of their efforts to further deepen economic cooperation and to enhance their closer development partnership, the two Leaders have decided to establish a High-Level Economic and Trade Dialogue mechanism with the objective of achieving enhanced trade and commercial relations, as well as to better balance the trade between the two countries.

7. They have also agreed to encourage mutual investments in identified sectors through the development of a Manufacturing Partnership and tasked their officials to develop this idea at the first meeting of the High-Level Economic and Trade Dialogue. India is seeking investments in China in IT and pharmaceutical sectors.

8. They also agreed on the importance of concluding negotiations for a mutually-beneficial and balanced Regional Comprehensive Economic Partnership.

9. They shared the view that an open, inclusive, prosperous and stable environment in the region is important to ensure the prosperity and stability of the region.

10. Both Leaders shared the view that the international situation is witnessing significant readjustment. They were of the view that India and China share the common objective of working for a peaceful, secure and prosperous world in which all countries can pursue their development within a rules-based international order.

INDIA ASSISTANCE FOR TYPHOON HAGIBIS

Indian Navy has pressed two of its ships into service to provide assistance to typhoon-battered Japan, it said on 13 October 2019. The Navy has deployed INS Sahyadri and INS Kiltan to render assistance to Japan.Typhoon Hagibis made landfall south of Tokyo on 12 October 2019, bringing heavy rains and causing floods. Nearly 26 people have been killed and hundreds injured due to the destruction. Prime Minister Narendra Modi condoled the deaths due to the cyclone on 13 October 2019.

What

1. Typhoon Hagibis made landfall south of Tokyo on 12 October 2019, bringing heavy rains and causing floods. Nearly 26 people have been killed and hundreds injured due to the destruction. Prime Minister Narendra Modi condoled the deaths due to the cyclone on 13 October 2019.

2. Typhoon Hagibis, which has been described by meteorologists as the strongest storm to hit Japan for more than six decades, caused widespread damage across low-lying land in central and eastern parts of the country, with rivers bursting their banks after hours of torrential rain and howling winds.

3. **Hagibis, which means "speed" in the Philippine language Tagalog**, forced the cancellation of hundreds of flights and affected shinkansen bullet train services.

4. Hagibis also caused disruption to major international sports events scheduled to take place over the three-day weekend, including the Rugby World Cup, forcing the cancellation of several pool matches.

5. Millions of residents of Tokyo awoke to sunshine and clear skies, and many train lines resumed services, but authorities warned that rivers in eastern Japan could still overflow and inflict more damage.

NEPAL, CHINA INK DEAL

China and Nepal on 13 October 2019 concluded agreements for all-weather connectivity between Kathmandu and the Tibet Autonomous Region. The infrastructure-building agreements were part of the 20 documents that were signed after delegation-level talks held by visiting Chinese President Xi Jinping and Nepalese Prime Minister K.P. Sharma Oli. An agreement for upgraded all-weather road connection that includes building of Himalayan tunnels was reached between the Ministry of Finance of Nepal and the China International Development Cooperation Agency.

What

1. Both sides resolved to begin feasibility studies for the construction of the tunnels along the road from Keyrung in Tibet to Kathmandu, said a joint statement issued at the end of the visit. The joint statement declared that both sides will intensify **cooperation to realise "trans-Himalayan multidimensional connectivity network".**

2. The tunnel network will connect Tokha and Chhahare within Nepal that will ultimately reduce the road distance between Nepal and China.

3. The current road network is unsafe as it is prone to disruption due to landslips and poor maintenance.

4. Both sides also gave the green signal for a feasibility study of the trans-Himalayan rail connectivity aimed at connecting the Nepal capital with major commercial centres of the Tibetan Autonomous Region and beyond in China.

5. Nepal agreed to allow Chinese banks to open branches and other financial services in Nepal and increase imports from China.

> Increased opportunity
>
> 1. As per agreements, China will offer 100 training opportunities to the Nepalese law enforcement officers each year, increase exchange of visits of security personnel, joint exercises and training of personnel for disaster relief and prevention.
>
> 2. China has agreed to build the Madan Bhandari University for Science and Technology as a mark of respect for the late leader of the Communist Party of Nepal.
>
> 3. It also committed to build a railway line connecting Kathmandu and Pokhara with the birthplace of Lord Buddha at Lumbini.

6. President Xi began his visit to Kathmandu on 13 October 2019 afternoon, after his trip to Chennai for the informal summit with Indian Prime Minister Narendra Modi. He was accompanied by his full diplomatic team headed by Foreign Minister Wang Yi.

7. Nepal also signed a treaty with China on mutual legal assistance in criminal matters which will allow China to investigate cases of crime that might target Nepal.

8. **Nepal reiterated its "firm commitment" to the One China policy.**

9. **Nepal also acknowledged that Taiwan was an "inalienable" part of China and** promised not to allow any anti-China activities on Nepal territory.

ECONOMY

INDIA AMONG 34 UN MEMBERS TO PAY UN BUDGET

India is among a handful of only 34 UN member states which paid their regular budget dues in full and on time to the world organisation (UN). India paid 23.25 million dollars in regular budget assessments by January 31, 2019, the 30-day due period specified as per **UN's Financial Regulation rules**. Only 33 other nations paid their regular budget assessments in full within this 30 day due period, subsequent to the end of the 30 day due period (January 31), 95 additional member states paid their 2019 regular budget assessment in full.

What

1. As of October 8, 2019, 129 Member States have paid their regular budget dues in full, according to UN sources. Member states have paid USD 1.99 billion towards the 2019 regular budget assessment, while the outstanding amount for 2019 for regular budget is USD 1.386 billion.

2. However, 64 states are yet to pay their regular budget dues in full for 2019. These include Afghanistan, Bangladesh, Brazil, Central African Republic, North Korea, Iran,

Israel, Mexico, Oman, the Philippines, South Korea, Saudi Arabia, Sri Lanka, US and Venezuela.

3. While India has been among the few countries to have fully paid its dues to the UN on time, the UN owed India USD 38 million, among the highest it has to pay to any country, for peacekeeping operations as of March 2019.

4. The **UN is facing a "severe liquidity crisis",** reaching its deepest deficit of the decade, UN Secretary General Antonio Guterres has said, warning that the world organisation will not have enough cash by next month to cover payrolls.

5. Guterres warned that in the current month, the organization will reach the deepest deficit of the decade. We risk exhausting the closed peacekeeping cash reserves, and entering November without enough cash to cover payrolls.

RBI INCREASES LENDING LIMIT OF MFIS

Reserve Bank of India has raised the lending cap for microfinance institutions to ₹1.25 lakh, against the earlier limit of ₹1 lakh, to improve credit availability in rural and semi-urban areas**. It has also been decided to "increase the household income limit for borrowers of non-banking financial companies-micro finance institutions (NBFC-MFIs) from the current level of ₹1 lakh for rural areas and ₹1.60 lakh for urban/semi urban areas to ₹1.25 lakh and ₹2 lakh, respectively".**

What

1. Taking into consideration the important role played by MFIs in delivering credit to those in the bottom of the economic pyramid and enable them to play their assigned role in a growing economy, the Reserve Bank of India (RBI) observed in its Statement on Developmental and Regulatory Policies.

2. The income and loan limits to classify an exposure as an eligible asset were last revised in 2015.

3. It is to be noted that the a sub-committee of the central board of the Reserve Bank under the chairmanship of Y.H. Malegam was constituted to study issues and concerns in the sector in the wake of the Andhra Pradesh micro finance crisis in 2010.

> **Flashback**
>
> 1. Microfinance Institutions (MFIs) in India exist as NGOs (registered as societies or trusts), Section 25 companies and Non-Banking Financial Companies (NBFCs). Commercial Banks, Regional Rural Banks (RRBs), cooperative societies and other large lenders have played an important role in providing refinance facility to MFIs.
>
> 2. Banks have also leveraged the Self-Help Group (SHGs) channel to provide direct credit to group borrowers.

4. Based on the recommendations of the committee, it was decided to create a separate category of NBFC-MFI and a detailed regulatory framework for NBFC-MFIs was put in place in December 2011.

PANEL TO AUGMENT GST REVENUE

The government has constituted a committee of officers to suggest measures to augment GST revenue collections and administration. The committee should consider a wide range of reforms so that a comprehensive list of suggestions may emerge.

What

1. The terms of reference of the panel include making suggestions about systemic changes in goods and services tax (GST) including checks and balances to prevent misuse and measures to improve voluntary compliance. Also, it has been tasked to give inputs on measures for the expansion of the tax base.

2.   Policy measures and relevant changes needed in the law, improved compliance monitoring and anti-evasion measures using better data analytics and better administrative coordination also form part of its terms of reference.

3.   The committee shall submit its first report within 15 days to the GST Council Secretariat.

4.   The genesis of the introduction of GST in the country was laid down in the historic Budget Speech of 28th February 2006, wherein the then Finance Minister laid down 1st April, 2010 as the date for the introduction of GST in the country.

5.   Thereafter, there has been a constant endeavor for the introduction of the GST in the country whose culmination has been the introduction of the Constitution (122nd Amendment) Bill in December, 2014.

6.   GST is an Indirect Tax which has replaced many Indirect Taxes in India. The Goods and Service Tax Act was passed in the Parliament on 29th March 2017. The Act came into effect on 1st July 2017.

SCIENCE AND TECHNOLOGY

ICON SATELLITE LAUNCHED

NASA launched a satellite on 10 October 2019 night to explore the mysterious, dynamic region where air meets space. The satellite — called ICON, short for Ionospheric Connection Explorer — rocketed into orbit following a two-year delay. It was dropped from a plane flying over the Atlantic off the Florida coast. Five seconds after the satellite's release, the attached Pegasus rocket ignited, sending Icon on its way.

What

1.   The ionosphere is the charged part of the upper atmosphere extending several hundred miles (kilometers) up. It's in constant flux as space weather bombards it from above and Earth weather from below, sometimes disrupting radio communications.

2.   This protected layer, it's the top of our atmosphere. It's our frontier with space, said NASA's heliophysics division director, Nicola Fox.

3.   The refrigerator-size ICON satellite will study the airglow formed from gases in the ionosphere and also measure the charged environment right around the spacecraft which is at a level of 580 kilometers above the Earth's surface.

4.   A NASA satellite launched last year, Gold, is also studying the upper atmosphere, but from much higher up. More missions are planned in coming years to study the ionosphere, including from the International Space Station.

5.   ICON should have soared in 2017, but problems with Northrop Grumman's air-launched Pegasus rocket interfered. Despite the long delay, NASA said the $252 million mission did not exceed its price cap.

NEW ORGANIC COMPOUNDS IN ENCELADUS

Data from NASA's Cassini mission has found new kinds of organic compounds, which have ingredients for amino acids–the key building blocks of life– from the icy plumes of Saturn's moon Enceladus. According to NASA's JPL mission, the material is ejected from Enceladus' core and mixes with water from the moon's subsurface ocean and released into space as water vapour and ice grains. These newly discovered molecules were condensed onto the ice grains.

What

1.   After a detailed study, scientists have determined these molecules to be nitrogen and oxygen-bearing compounds, which are the key building blocks of life.

2. According to NASA's press statement, scientists believe **Enceladus' hydrothermal vents are operating in a way similar to how these vents works inside Earth's** oceans. These vents on Saturn's moon are supplying the energy that leads to the production of amino acids.

3. If the conditions are right, these molecules coming from the deep ocean of Enceladus **could be on the same reaction pathway as we see here on Earth. We don't yet know if** amino acids are needed for life beyond Earth, but finding the molecules that form amino acids is an important piece of the puzzle, said Nozair Khawaja, who led the research team of the Free University of Berlin.

4. This illustration shows the process of organic compounds making their way onto **ice grains emitted in plumes from Saturn's moon Enceladus**, where they were detected by NASA's Cassini spacecraft.

5. Last year's the team had discovered insoluble complex organic molecules, which were believed to be floating on the surface of Enceladus' ocean. "Here we are finding smaller and soluble organic building blocks – potential precursors for amino acids and other ingredients required for life on Earth.

CURIOSITY ROVER FINDS LAKE ON MARS

NASA's Curiosity Rover has collected more evidence that the 150 km wide Gale crater on Mars once hosted a lake and stream system in the past. Researchers say that dating back to around 3.5 billion years ago, not only the groundwater must have **enriched the crater but water streams might have laced the crater's walls, running towards** its base, as well. The crater would then dry up, only to be overflown again. Curiosity scientists published the findings in a Nature Geoscience paper describing the cycle of overflow and drying up of the Gale crater that could have repeated itself numerous times over millions of years.

What

1. They explain that the Gale Crater was created by an ancient impact, and it was filled in with sediments carried by water and wind layer by layer over time. After the sediment hardened, the wind carved the layered rock into the towering Mount Sharp.

2. The slopes of this mountain are exposed and the scientists say that each layer reveals a different era of Martian history and holds clues about the prevailing environment at the time.

3. The bottom of the image is the floor of Gale Crater, with the peak being the side of Mount Sharp.

4. The Curiosity Rover analysed the soil samples from the crater's bedrock to find a diverse range of salts, which is not observed in other rocks on the red planet.

5. The deposits serve as a watermark created by climate fluctuations as the Martian environment transitioned from a wetter one to the freezing desert it is today.

6. Scientists want to understand how long this transition took and when exactly it occurred. The researchers believe that studying younger rocks in the future could shed more light on how the Martian surface dried out.

7. This latest clue may be a sign of findings to come as Curiosity heads toward a region **called the 'sulfate-bearing unit', which is expected to have formed in an even drier environment, according to a statement from NASA's Jet Propulsion** Laboratory.

8. It represents a stark difference from lower down the mountain, where Curiosity discovered evidence of persistent freshwater lakes.

MISCELLANEOUS

IAF RECEIVES ITS FIRST RAFALE FIGHTER JET

Defence minister Rajnath Singh on 8 October 2019 formally received the Indian Air Force's first Rafale fighter jet from a series of 36 such aircraft purchased from France. Singh attended the handover ceremony along with his French counterpart Florence Parly at aircraft maker Dassault Aviation facility in Merignac, southwestern France. The minister performed a brief Shastra Puja on the new aircraft as he emblazoned it with an 'Om' tilak and laid flowers and a coconut, just before taking off in it for a sortie. He was joined by senior representatives of the Indian Armed Forces to mark the induction ceremony.

What

1. India had ordered 36 Rafale fighter jets from France in a deal worth Rs 59,000 crore in September 2016.

2. While the formal handover ceremony takes place this week, the first batch of four Rafale jets will fly to their home base in India by May 2020.

3. All 36 jets are expected to arrive in India by September 2022, for which the IAF has been reportedly undertaking preparations, including readying required infrastructure and training of pilots.

4. The Rafale is a twin-jet fighter aircraft able to operate from both an aircraft carrier and a shore base. The manufacturers describe it as a fully versatile aircraft which can carry out all combat aviation missions to achieve air superiority and air defence, close air support, in-depth strikes, reconnaissance, anti-ship strikes and nuclear deterrence.

5. Moreover, the 13 India-Specific Enhancements (ISEs) or upgrades on the 36 jets to improve tactical superiority in the region, which includes the engine capability to "cold start" from high-altitude regions like Ladakh, will become fully operational only by October 2022 after undergoing "software certification" after all have arrived in India.

> **Flashpoint**
>
> 1. Rafale, categorised as a 4.5 generation aircraft for its radar-evading stealth profile, will be a game changer for the Indian Air Force (IAF) since most of the aircraft in its inventory - including the Mirage 2000 and the Su-30 MkI - are classified as either third- or fourth-generation fighters.
>
> 2. The upgraded version of the Mirage and the Sukhoi 30 can at best reach up to the category of fourth-generation fighters. The indigenously developed Light Combat Aircraft (LCA) Tejas can be categorised as fourth-generation in terms of avionics and technology but it is too small an aircraft to make a difference.
>
> 3. India will only be the fourth country, after France, Egypt and Qatar, to fly the Rafale. But the Rafale cannot be compared with the J-20, an indigenously developed fifth-generation aircraft of China.

6. With a combat range of 780-km to 1,650-km depending on mission, the Rafales come armed with a deadly weapons package, advanced avionics, radars and electronic warfare systems to prevent jamming by adversaries and ensure superior survivability in hostile contested airspace.

7. For one, its Meteor beyond visual range air-to-air missiles (BVRAAMs), powered by ramjet engines for a range over 120-150 km at Mach 4 speed, are arguably the best in the world for air combat.

8. The Sukhoi-30MKI jets scrambled to intercept the incoming Pakistani fighters on February 27, along with Wing Commander Abhinandan Varthaman and others in MiG-21s, found it difficult to engage the F-16s at long ranges during the aerial skirmish.

9. Rafales with their Meteor missiles would have knocked down the Pakistani F-16s, which were armed with the AIM-120C advanced medium-range air-to-air missiles (AMRAAMs).

10. The Rafale also has the fire-and-forget Scalp air-to-ground cruise missiles that can hit high-value fortified targets well over 300-km away. Each fighter can carry two Scalp missiles for precision strikes deep inside enemy territory without crossing over into rival airspace.

STATION CLEANLINESS SURVEY 2019

Piyush Goyal-led Railway Ministry has released the latest 2019 survey that ranks the cleanest railway stations in India. **Rajasthan's Jaipur station of Indian** Railways has topped the list of cleanest railway stations in India, in the non-suburban group of stations. The survey states that Jaipur has been ranked first in the Station Cleanliness Survey 2019 with an overall cleanliness score of 931.75. Jodhpur has been ranked second with a score of 927.19 and Durgapura is third with a score of 922.50. In the suburban group of stations, **Maharashtra's Andheri station** has topped the list. The cleanest railway zone 2019 award has been given to the North Western Railway Zone, under which the Jaipur railway station falls. The North-Western railway zone has maintained its rank of the cleanest railway zone in India from 2018. The survey has been carried out by the Quality Council of India.

Top 10 cleanest railway stations in India 2019
1. Jaipur
2. Jodhpur
3. Durgapura
4. Jammu Tawi
5. Gandhinagar Jaipur
6. Suratgarh
7. Vijayawada
8. Udaipur City
9. Ajmer
10. Haridwar

Environment conscious

1. The survey also found that out of 720 stations, 25% had provision for water conservation, 18% of them had mechanism for rainwater harvesting and nine per cent had provision for water reuse.

2. Only 2% stations had green certification while 29% had provision for on-site renewable energy using solar panels. The survey also revealed that 66% of the stations were using LED bulbs.

3. Four stations of Southern Railway - Perungalathur, Guduvanchari, Singaperumalkoil, Ottapallam - were at the bottom of the rankings.

4. Non-suburban stations Faizabad and Ayodhya in Uttar Pradesh have shown the most improvement from last year, the survey found.

SSB AWARD 2019

Twelve scientists have been awarded the prestigious Shanti Swarup Bhatnagar award for science and technology for 2019. The award is given annually in different categories to scientists below 45 years.

What

1. This year, the award for Biological Sciences will go to Kayarat Saikrishnan of IISER, Pune, and Soumen Basak of National Institute of Immunology, New Delhi.

2. Chemical Sciences award will go to Raghavan B Sunoj of IIT-Bombay and Tapas Kumar Maji of Jawaharlal Nehru Centre for Advanced Scientific Research, Bengaluru.

3. Subimal Ghosh of IIT-Bombay won the award for Earth, Atmosphere, Ocean and Planetary Sciences.

4. The award for Mathematical Sciences went to Dishant Mayurbhai Pancholi of Institute of Mathematical Sciences, Chennai, and Neena Gupta of Indian Statistical Institute, Kolkata.

5. Recipients of award for Physical Sciences are Aninda Sinha of Indian Institute of Science, Bengaluru, and Shankar Ghosh of Tata Institute of Fundamental Research.

Flashback

1. The award is named after the founder Director of the Council of Scientific & Industrial Research (CSIR) India, the late Dr (Sir) Shanti Swarup Bhatnagar and is known as the 'Shanti Swarup Bhatnagar (SSB) Prize for Science and Technology'. The Prize is given each year for outstanding contributions to science and technology.

2. SSB Prizes are awarded annually for notable and outstanding research, applied or fundamental, in the following disciplines: (i) Biological Sciences, (ii) Chemical Sciences, (iii) Earth, Atmosphere, Ocean and Planetary Sciences (iv) Engineering Sciences, (v) Mathematical Sciences, (vi) Medical Sciences and (vii) Physical Sciences.

3. The purpose of the award is to recognise outstanding Indian work in science and technology.

4. Any citizen of India engaged in research in any field of science and technology up to the age of 45 years as reckoned on 31st December of the year preceding the year of the Prize.

5. Overseas citizen of India (OCI) and Persons of Indian Origin (PIO) working in India are also eligible.

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6. Manik Varma of Microsoft Research India, Bengaluru, won the award for Engineering Sciences. Dr Dhiraj Kumar of New Delhi-based International Centre for Genetic Engineering and Biotechnology and Dr Mohammad Javed Ali of L V Prasad Eye Institute, Hyderabad, on in Medical Sciences category.

FACES OF INDUS VALLEY PEOPLE RECONSTRUCTED

In a first, scientists have generated an accurate facial representation of the Indus Valley Civilisation people by reconstructing the faces of two of the 37 individuals who were found buried at the 4,500-year-old Rakhigarhi cemetry. A multi-disciplinary team of 15 scientists and academics from six different institutes of South Korea, UK and India, applied craniofacial reconstruction (CFR) technique using computed tomography (CT) data of two of the Rakhigarhi skulls, to recreate their faces.

What

1. The case study, led by W J Lee and Vasant Shinde and supported in part by a grant of the National Geographic Society, has been published in a widely reputed journal, Anatomical Science International.

2. The report is very significant because till date, we have had no idea about how Indus Valley people looked. But now we have got some idea about their facial features,

Shinde, who led the Rakhigarhi archaeological project. Located in Haryana, Rakhigarhi is one of the largest Indus Valley sites.

3. It was difficult to establish the physical appearance so far because "Indus Valley cemeteries and graves have not been investigated sufficiently to date" and "the anthropological data obtained from the skeletons still fall short" for recreating morphology of the Indus Valley people.
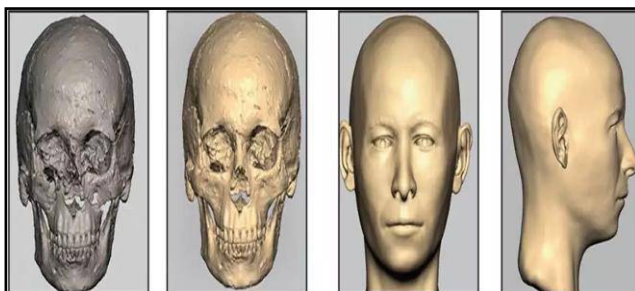
4. Also, except for "the Priest King, a famous figurine found at Mohenjodaro," there is no advanced or developed art from the Indus Valley civilisation that could lead to an accurate representation of the morphology of its population.
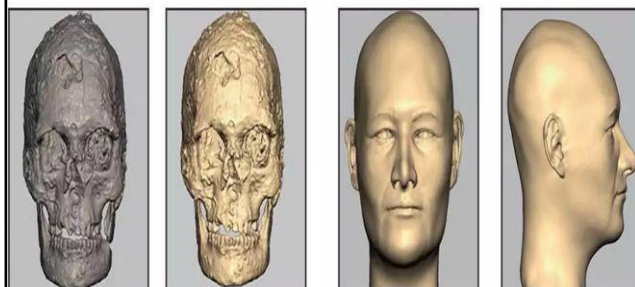
5. The CFR technology generated faces of the two Rakhigarhi skulls, therefore, is a major breakthrough, Shinde, a professor at Deccan College Post-Graduate and Research Institute, said.

6. Going by the 3-D video representation of the faces, the two individuals of the Rakhigarhi settlement appeared to have Caucasian features with hawk-shaped and Roman noses. The study, however, cautioned against drawing any generic conclusions.

NOBEL PRIZE FOR MEDICINE 2019

The 2019 Nobel Prize for Medicine or Physiology was jointly awarded on 7 October 2019 to two Americans and a British scientist, namely William G. Kaelin Jr, Gregg L. Semenza, Sir Peter J. Ratcliffe, **for their discoveries of "**how cells sense and adapt to oxygen availability". "Oxygen sensing is central to a large number of diseases. The **discoveries made by this year's Nobel Prize laureates have fundamental importance for** physiology and have paved the way for promising new strategies to fight anaemia, cancer and many other diseases.

What

1. It is the 110th prize in the category that has been awarded since 1901. The Karolinska Institutet, which awards the Nobel Prize for Medicine, said that the trio should share equally the 9 million kronor (918,000 US Dollars) cash award.

2. The jury said the trio had identified molecular machinery that regulates the activity of genes in response to varying levels of oxygen, which is central to a large number of diseases.

3. Kaelin works at the Howard Hughes Medical Institute in the US, while Semenza is director of the Vascular Research Program at the John Hopkins Institute for Cell Engineering.

4. Ratcliffe is director of clinical research at the Francis Crick Institute in London and director of the Target Discovery Institute in Oxford. The three will share the Nobel prize sum of nine million Swedish kronor (about USD 914,000).

5. Last year, the honour went to immunologists James Allison of the US and Tasuku Honjo of Japan, for figuring out how to release the immune system's brakes to allow it to attack cancer cells more efficiently.

NOBEL PHYSICS PRIZE 2019

Scientists James Peebles, Michel Mayor and Didier Queloz won the 2019 Nobel Prize for Physics for ground-breaking work in astronomy, the award-giving body said on 8 October 2019. Peebles was awarded half the prize while Mayor and Queloz shared the other half. This year's Laureates have transformed our ideas about the cosmos, the Royal Swedish Academy of Sciences said on awarding the 9 million Swedish crown ($910,000) prize.

What

1. James Peebles' theoretical discoveries contributed to our understanding of how the universe evolved after the Big Bang, Michel Mayor and Didier Queloz explored our cosmic neighbourhoods on the hunt for unknown planets. Their discoveries have forever changed our conceptions of the world.

2. Canadian-American cosmologist James Peebles and Swiss astronomers Michel Mayor and Didier Queloz won the Nobel Physics Prize for research increasing our understanding of our place in the universe.

3. Peebles is Albert Einstein Professor of Science at Princeton University in the United States, while Mayor and Queloz are both professors at the University of Geneva.

4. In 1995, astrophysicist Michel Mayor and astronomer Didier Queloz discovered the first exoplanet -- a planet outside our solar system -- orbiting a solar-type star, 51 Pegasi. Reacting to their win, the two scientists said it was "simply extraordinary".

5. The 2019 prize rewards "new understanding of the universe's structure and history, and the first discovery of a planet orbiting a solar-type star outside our solar system. The discoveries have forever changed our conceptions of the world.

6. The trio will receive the prize from King Carl XVI Gustaf at a formal ceremony in Stockholm on December 10, the anniversary of the 1896 death of scientist Alfred Nobel who created the prizes in his last will and testament.

7. In 2018, the honour went to Arthur Ashkin of the US, Gerard Mourou of France and Donna Strickland of the US for laser inventions used for advanced precision instruments in corrective eye surgery and in industry.

8. After Marie Curie in 1903 and German-American scientist Maria Goeppert-Mayer in 1963, Strickland became just the third woman to be awarded the Physics Prize since 1901.

NOBEL PRIZE 2019 IN CHEMISTRY

The 2019 Nobel Prize in Chemistry has been jointly awarded to John B Goodenough of the US, **Britain's M Stanley Whittingham** and **Japan's Akira Yoshino** for the development of lithium-ion batteries, the Royal Swedish Academy of Sciences announced on 9 October 2019. The award was announced by Göran K Hansson, Secretary General of The Royal Swedish Academy of Sciences.

What

1. John B Goodenough, M Stanley Whittingham and Akira Yoshino share the prize for their work on these rechargeable devices, which are used for portable electronics.

2. At the age of 97, Prof Goodenough is the oldest ever Nobel laureate. The trio will share the prize money of nine million kronor (£738,000).

3. The lithium-ion battery is a lightweight, rechargeable and powerful battery that is used in everything from mobile phones to laptops to electric cars.

4. Lithium-ion batteries are used globally to power the portable electronics that we use to communicate, work, study, listen to music and search for knowledge.

5. The foundation of the lithium-ion battery was laid during the oil crisis of the 1970s. M Stanley Whittingham, 77, who was born in the UK, worked to develop energy technologies that did not rely on fossil fuels.

6. He discovered an energy-rich material called titanium disulphide, which he used to make a cathode - the positive terminal - in a lithium battery.

7. Whittingham, who is based at Binghampton University in Vestal, US, made the anode, the battery's negative terminal, from metallic lithium - which has a strong preference for releasing electrons. This made it very suitable for use in batteries. This resulting device was able to release just over two volts, but the metallic lithium made it explosive.

8. John B Goodenough, who is American but was born in Germany, predicted that the cathode could be improved if it was made from a metal oxide, rather than a sulphide.

9. In 1980, after searching for the ideal material, Goodenough, who is a professor at the University of Texas, Austin, used cobalt oxide to boost the lithium batteries potential to four volts.

10. With Goodenough's cathode as a basis, Akira Yoshino, 71, created the first commercially-viable lithium-ion battery in 1985. Yoshino, who was born in Osaka, Japan, works for the Asahi Kasei Corporation and Meijo University in Nagoya.

11. The 2018 literature prize was suspended after a scandal rocked the Swedish Academy. The body plans to award it this year, along with announcing the 2019 laureate.

NOBEL PRIZES IN LITERATURE

Austrian author Peter Handke and **Poland's Olga Tokarczuk** were awarded the Nobel Prize in Literature on 10 October 2019. The Swedish Academy named Mr. Handke the laureate for 2019 and Ms. Tokarczuk for 2018 **after postponing last year's** award due to a protracted scandal.

What

1. **The academy said it honored Mr. Handke** "for an influential work that with linguistic ingenuity has explored the periphery and the specificity of human **experience." Since his debut novel,** "Die Hornissen**," was published in 1966, he has** established himself as one of **Europe's most influential postwar writers**.

2. Ms. Tokarczuk, whose novels include "Primeval and Other Times" **and** "The Books of Jacob**," has displayed a** "narrative imagination that with encyclopedic passion represents the crossing of boundaries as a form of life"..

3. The panel at the Swedish Academy that judges the Nobel literature prize has undergone a sweeping revamp in the past year following sexual assaults involving Jean-Claude Arnault, the husband of a former member of the academy and a prominent figure in cultural circles in Sweden. Mr. Arnault in late 2018 was convicted of two rapes dating to 2011.

NOBEL PEACE PRIZE 2019

Ethiopian Prime Minister Abiy Ahmed won the 2019 Nobel Peace Prize on 11 October 2019 for his peacemaking efforts with Eritrea. Ethiopia and Eritrea, longtime foes who fought a border war from 1998 to 2000, restored relations in July 2018 after years of hostility. The prize, worth nine million Swedish crowns, or around $900,000, will be presented in Oslo on December 10, the anniversary of the death of Swedish industrialist Alfred Nobel, who founded the awards in his 1895 will.

What

1. Berit Reiss-Andersen, the chairperson of the five-member Norwegian Nobel Institute that awards the Nobel Peace Prize said Ahmed was named for his moves to end his

country's conflict with next door Eritrea within months of coming to office in 2018. He signed a "Joint Declaration of Peace and Friendship," with Eritrean Prime Minister Isaias Afwerki.

2. Names flying around include 16-year-old Swedish climate activist Greta Thunberg; Prime Minister Abiy Ahmed of Ethiopia; German Chancellor Angela Merkel; and activists in Hong Kong.

3. The Norwegian Nobel Institute could also **choose to acknowledge United Nations'** World Food Program, **or the joint leadership of two prime ministers Greece's Alexis Tsipras and North Macedonia's Zoran Zaev who brought an end t**o 30 years of acrimony between their nations.

4. Since 1901, 99 Nobel Peace Prizes have been handed out, to individuals and 24 organizations. While the other prizes are announced in Stockholm, the peace prize is awarded in the Norwegian capital, Oslo. So far this week, 11 Nobel laureates have been named, of whom 10 are men.

5. Two literature prizes were awarded on 10 October 2019- One for 2018 that went to Polish novelist Olga Tokarczuk and one for 2019 that was given to Austrian author Peter Handke.

NOBEL PRIZE 2019 FOR ECONOMICS

The Royal Swedish Academy of Sciences 14 October 2019 awarded Abhijit Banerjee, Esther Duflo and Michael Kremer the prestigious Nobel Prize in Economic **Sciences** "for their experimental approach to alleviating global poverty." Banerjee and Duflo are both at Massachusetts Institute of Technology while Kremer is at Harvard University. French development aid economist Esther Duflo has become the second woman to win the prize, after Elinor Ostrom of the US in 2009. With the glory comes a 9 million-kronor ($918,000) cash award, a gold medal, and a diploma.

What

1. The research conducted by the 2019 Economic Sciences Laureates has considerably improved our ability to fight global poverty. In just two decades, their new experiment-based approach has transformed development economics, which is now a flourishing field of research.

2. Abhijit Banerjee and Esther Duflo, often with Michael Kremer, performed similar studies of other issues and in other countries. Their experimental research methods now entirely dominate development economics.

3. As a direct result of one of their studies, more than five million Indian children have benefitted from effective programmes of remedial tutoring in schools. Another example is the heavy subsidies for preventive healthcare that have been introduced in many countries.

4. Last year, the prize went to William Nordhaus and Paul Romer of the US for **constructing "green growth" models** that show how innovation and climate policies can be integrated with economic growth.

5. Unlike other prizes, the Nobel Prize for Economics, officially known as the Bank of Sweden Prize in Economic Sciences in Memory of Alfred Nobel, **wasn't created by** the prize founder.

6. It was created by Riksbanken, the Swedish central bank, in 1968, and the first winner was selected a year later. So far, 81 Nobel laureates in economic sciences have been awarded.

INDIA'S 'MISSILE MAN' REMEMBERED

October 15 is a very special day in Indian history. It was on this day in the year 1931 that Dr APJ Abdul Kalam, the former President who made India a missile and

nuclear power, was born in Rameswaram. A great scientist, who saw the dream to make India a developed nation**, was considered the father of the country's missile programme.** He played multifarious roles of scientist, President, dedicated teacher and an educator.

What

1. **In recognition of former President's love for students and education,** United Nations **announced October 15 as World Students' Day** to commemorate on his birth anniversary.

2. **APJ Abdul Kalam's love for students is reflected best in his own words: "**Dream, Dream, Dream, Dreams transform into thoughts. And thoughts result in action**."**

3. **His impeccable wisdom finds a voice in his advise to students when he said, "**If you **fail, never give up because FAIL means 'first attempt in** learning'**."**

4. **Kalam was closely involved in the country's civilian space programme and took** military missile development efforts. His landmark achievements in making the **country's space programme a success earned him the title of '**Missile Man of India**'.**

5. After completing his graduation from the Madras Institute of Technology in 1960, Kalam designed a helicopter for Indian Army and began his career as a scientist and science administrator at the Defence Research and Development Organisation (DRDO) and later at the Indian Space Research Organisation (ISRO). He served as the president for five years from 2002.

6. APJ Abdul Kalam succeeded the then President of India KR Narayanan and served his full-term from 2002 to 2007. After completing his tenure, he returned to what he loved the most: teaching and writing.

7. He received several prestigious awards, including **India's highest civilian honour** the Bharat Ratna in 1997, Padma Bhushan in 1981 and the Padma Vibhushan in 1990.

8. He passed away due to cardiac arrest while delivering a lecture to the students of IIM Shillong on July 27, 2015.

CHANDRAYAAN 2'S ORBITER OBSERVES SOLAR FLARES

One of the eight scientific payloads on board Chandrayaan-**2's orbiter**, circling the **Moon's orbit at 100km**, has measured solar flares between September 30 and October 1, which, in turn, will help scientists better understand various processes on the Sun. The payload, solar X-ray monitor (XSM), which detected the solar flares, is capable of measuring X-rays emitted by the Sun and its corona, and can also measure the intensity of solar radiation.

What

1. Its primary objective is to provide X-ray spectrum in the energy range of 1-15 keV, according to Indian Space Research Organisation (Isro).

2. Currently, the solar cycle is heading towards minima and the Sun has been extremely quiet for the past few months. Therefore, XSM could observe a series of small flares between September 30 and October 1.

What is a solar flare?

1. Many violent phenomena keep occurring on the surface of the Sun and its atmosphere known as the corona.

2. This solar activity follows an 11-year cycle, which means, it **goes through its 'solar maxima' and 'solar minima' once every 11 years**.

3. While the cumulative emission of solar X-rays emitted over a year varies with the solar cycle, these are often punctuated with extremely large X-ray intensity variations over very short periods, few minutes to hours. Such episodes are known as solar flares.

3. The orbiter also uses X-rays emitted by the Sun in a clever way to study elements on the lunar surface.

4. Solar X-rays excite atoms of constituent elements on the lunar surface. These atoms when de-excited emit characteristic X-rays (a fingerprint of each atom).

5. By detecting the characteristic X-rays, it becomes possible to identify various major elements of the lunar surface. However, to determine their concentration, it is essential to have simultaneous knowledge of the solar X-ray spectrum.

6. **The orbiter's** Large Area Soft X-ray Spectrometer (CLASS) and XSM payloads can measure the lunar elemental composition using this technique. While CLASS detects the characteristic lines from the lunar surface, XSM simultaneously measures the solar X-ray spectrum.

INFLUENTIAL PEOPLE IN DIGITAL GOVERNANCE

Ravi Shankar Prasad, India's telecom, IT and law minister, has been adjudged among the 100 most influential people in the world of digital governance for his contribution in leading the implementation of Digital India. According to a government release, "Prasad has been so adjudged by a leading UK based NGO Apolitical, a social good company, which presents global platforms for government that helps public servants experts and partners to find ideas to solve challenges facing society."

What

1. Leading entrepreneurs, authors senior policy advisors, technologists and professors of Harvard University are members of Apolitical. The World Bank, World Economic Forums and others are among its partners.

2. **Prasad has been leading the government's digital efforts** which includes programmes such as Digital India that aims to empower citizens through the use of technology and digital delivery of services.

3. Prasad has emphasised the need for greater inclusion in society through the use of technology in areas such as health, education and delivery of government services and subsidies.

4. Apolitical **has recognised the minister's efforts towards digital inclusion in its** commendation. It is indeed a matter of pride that India's approach of digital transformation is now having global resonance.

5. **Prasad said the success of the government's programmes is b**ased on the efforts of the tech-savvy population and the push given by Prime Minister Narendra Modi.

6. Digital governance is a framework for establishing accountability, roles, and decision-**making authority for an organization's digital presence**—which means its websites, mobile sites, social channels, and any other Internet and Web-enabled products and services.