Prelim Bits 11-06-2018

Brain Drain Reversal

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- The schemes launched to reverse the process of infamous ‘brain drain’ have finally started yielding results.
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- This was reflected in the data presented at the first joint conclave of India’s top three science fellowships.
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- The three science fellowships are as follow,
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1. Ramanujan Fellowship of the Science and Engineering Research Board (SERB),
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2. Ramalingaswami Re-entry Fellowship of the Department of Biotechnology (DBT)
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3. INSPIRE Faculty Fellowship of the Department of Science and Technology (DST).
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- The schemes cover all major disciplines of science.
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- The Ramanujan Fellowship is meant for brilliant scientists from all over the world to take up scientific research positions in India.
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- The Ramalingaswami Re-entry Faculty Fellowship of DBT was meant to bring back Indian scientists working abroad so that they can pursue their research interests of national relevance.
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- INSPIRE Faculty Scheme opens up an 'Assured Opportunity for Research Career (AORC)' for young researchers in the age group of 27-32 years.

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Institute for Economics and Peace (IEP) Report

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- The report was prepared by the Institute for Economics and Peace (IEP) based upon an analysis of 163 countries and territories.
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- Violence cost the Indian economy a whopping USD 1.19 trillion last year in constant purchasing power parity (PPP) terms, which amounts to roughly USD 595.4 per person.
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- The economic impact of violence on the global economy was USD 14.76 trillion in 2017, in PPP terms.
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- The global economic impact of violence is defined as the expenditure and economic effect related to containing, preventing and dealing with the consequences of violence.
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- As per the report, human beings encounter conflict regularly whether at home, at work, among friends, or on a more systemic level between ethnic, religious or political groups.
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- The fall in peacefulness over the decade was caused by a wide range of factors, including increased terrorist activity, the intensification of conflicts in the Middle East, rising regional tensions in Eastern Europe and northeast Asia.
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- The increasing numbers of refugees and heightened political tensions in Europe and the US are other factors.
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India’s first indigenous Lithium Ion Battery project

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- Central Electro Chemical Research Institute (CECRI), Karaikudi, Tamil Nadu and RAASI Solar Power Pvt Ltd have signed a Memorandum of Agreement for transfer of technology for India’s first Lithium Ion (Li-ion) Battery project.
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- CECRI is under Central Science and Industrial Research (CSIR).
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- CSIR-CECRI has set up a demo facility in Chennai to manufacture prototype Lithium-Ion cells.
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- It has secured global IPRs with potential to enable cost reduction, coupled with appropriate supply chain and manufacturing technology for mass production.
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- Currently, Indian manufacturers source Lithium Ion Battery from China, Japan and South Korea among some other countries.
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- India is one of the largest importers and in 2017, it imported nearly 150 Million US Dollar worth Li-Ion batteries.
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- Li-Ion batteries have applications in Energy Storage System – from hearing aid to container sized batteries to power a cluster of villages etc.,
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- Lithium-ion batteries can power any electrical application without the need of physical wires-means wireless.
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seqFISH

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- Scientists have developed a new technique called seqFISH that enables them to image 10,421 genes at once within individual cells.
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- seqFISH (sequential fluorescence in situ hybridisation), is a major advance in being able to identify what goes on across the genome in hundreds of different cells at once.
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- Previously, researchers could only image four to five genes at a time in cells with microscopy.
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- Using the newly developed intron seqFISH technique, each intron is labelled with a unique fluorescent barcode, enabling it to be seen with a microscope.
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- First, a gene will be read and copied into a precursor messenger RNA, or pre-mRNA, like jotting a quick, rough draft.
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- This molecule then matures into a messenger RNA, or mRNA, akin to editing

the rough draft.
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- During the "editing" process, certain regions called introns are cut out of the pre-mRNA.
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- An intron is any nucleotide sequence within a gene that is removed by RNA splicing during maturation of the final RNA product.
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Central Vigilance Commission

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- Ex-Chief of NIA Sharad Kumar has been appointed as the Vigilance Commissioner in the Central Vigilance Commission, New Delhi for a term of four years.
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- The Central Vigilance Commission was set up by the Government in February,1964 on the recommendations of the Committee on Prevention of Corruption, headed by Shri K. Santhanam, to advise and guide Central Government agencies in the field of vigilance.
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- CVC is conceived to be the apex vigilance institution, free of control from any executive authority, monitoring all vigilance activity under the Central Government.
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- It advises various authorities in Central Government organizations in planning, executing, reviewing and reforming their vigilance work.
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- The Central Vigilance Commission Act 2003 came into effect from 2003.
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- The Central Vigilance Commissioner (CVC) is the Chairperson and the Vigilance Commissioners (Members) of the Committee, on whose recommendations, the Central Government appoints the Director of Enforcement
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- CVC shall have all the powers of a civil court while conducting any inquiry under sec 11 of the act.
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Novel Material to remove pollutants from the water

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- Scientists have identified absorbent materials that can help soak up pollutants found in urban waste water in less than 24 hours.
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- Highly-charged expandable synthetic mica (Na-Mica-4), and one obtained from cation exchange with organo-functionalised mica (C18-Mica-4) are the two phyllosilicates used.
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- Phyllosilicates are a subclass of silicates and include common mineral in very different environments.
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- A significant correlation between the physical chemical properties of the selected criteria and emerging pollutants and the adsorption to the material was established.
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- With the personal care products, two synthetic preservatives (methylparaben and propylparaben), were analysed with the material both widely used in cosmetic and pharmaceutical products.
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Source: PIB, The Hindu

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