Prelim Bits 18-11-2017

Lunar Sample Return Mission

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- India and Japan will collaborate to send a joint mission to the moon, which includes landing a rover and bringing samples back to the earth.
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- This is the second time that Japan and India are teaming up for a moon mission.
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- Team Indus will be the first private firm to land a rover on the moon and will carry a Japanese rover by team Hakuto on its spacecraft.
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- ISRO sent its first orbiter mission to moon, Chandrayaan-1, in 2008 and plans a lander rover mission by March 2018.
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Launch Vehicle Production

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- Currently, public and private industries have only supplied devices, components and sub-systems for ISRO’s launch vehicles (PSLV and GSLV).
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- ISRO is preparing to hand over the entire gamut of launch vehicle manufacture to domestic industry by 2020.
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- ISRO already has a partnership with private industry to produce satellites.
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- The IRNSS-1H communication satellite in PSLV C-39 was the first to be produced by a consortium of six companies.
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PSLV & GSLV

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- PSLV is designed mainly to deliver the “earth-observation” or “remote-sensing” satellites.
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- It can send satellites with lift-off mass of up to about 1750 Kg to Sun-Synchronous circular polar orbits of 600-900 Km altitude.
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- It is also used to launch the satellites of lower lift-off mass of up to about 1400 Kg to the elliptical Geosynchronous Transfer Orbit (GTO).
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- The GSLV is designed mainly to deliver the communication-satellites to the highly elliptical Geosynchronous Transfer Orbit (GTO).
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- The satellite in GTO is further raised to its final destination, viz., Geo-synchronous Earth orbit (GEO) of about 36000 Km altitude by firing its in-built on-board engines.
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- PSLV is a four-staged launch vehicle with first and third stage using solid rocket motors and second and fourth stages using liquid rocket engines.
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- GSLV has three stages with the only the first stage having solid fuel.
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- The first version, GSLV Mk-II, has the capability to launch satellites of lift-off mass of up to 2,500 kg to the GTO and satellites of up to 5,000 kg lift-off mass to the LEO.
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- GSLV MK-II has first stage using solid rocket motor, second stage using liquid fuel and the third stage using cryogenic engine.
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- The GSLV has 4 liquid boosters while the PSLV has 6 solid boosters to augment the thrust provided by the first stage.
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Ban on Pet Coke and Furnace oil

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- The SC has requested all States and UT to move forward towards a nationwide ban on the use of pet coke and furnace oil to power up industries.
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- Their use is already prohibited in Delhi, Uttar Pradesh, Haryana and Rajasthan.
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Petroleum coke or Petcoke

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- It is a final carbon-rich solid material that is derived from oil refining.
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- Petcoke is over 90 percent carbon and emits 5 to 10 percent more carbon dioxide (CO2) than coal on a per-unit-of-energy basis when it is burned.
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- It can contain vanadium, a toxic metal which is toxic in tiny quantities, 0.8 micrograms per cubic meter of air.
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- It is sometimes a source of fine dust, which can get through the filtering process of the human airway and lodge in the lungs.
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Furnace oil

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- It is a dark viscous residual product used as a fuel in different types of combustion equipment.
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- It is obtained by blending residual products from various refining processes with suitable diluents to obtain the required fuel oil grades.
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- It is used in special applications such as
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i. In marine engines and slow speed engines for power generation
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ii. For drying tea leaves
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iii. In gas turbines for power generation
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iv. As a feed stock for fertilizer manufacturing
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v. In thermic fluid heaters and hot air generators.
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UN Peacekeeping Defence Ministerial

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- UN Peacekeeping Defence Ministerial was held at Vancouver, Canada.
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- The last meeting was held in London in September 2016.
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- The conference had taken up issues on Women, Peace and Security, Pre and Post Deployment, Tackling Sexual Exploitation and Abuse (SEA) and Improving Peacekeeping – Rapid Deployment.
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- Delegates from more than 70 countries and international organizations African Union, the European Union, NATO has participated.
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Source: The Hindu, PIB

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