

C.A From 14th July to 22nd July 2018

General Studies-1

Bansagar canal project

Why in News?

Prime Minister Narendra Modi recently inaugurated the Bansagar canal project in Mirzapur in Uttar Pradesh.

Bansagar canal project:

- Bansagar Dam project is a joint venture between Madhya Pradesh, Uttar Pradesh and Bihar.
- Bansagar Dam is a multipurpose river Valley Project on Sone River situated in the Ganges Basin in Madhya Pradesh.
- The total canal network under it is 171 kms long.
- Canals under this project will bring waters from Shahdol district in Madhya Pradesh for Adwa Barrage, Meza Dam and Jirgo reservoir.
- The project aims to provide a big boost to irrigation in the region. It promises to be greatly beneficial for the farmers of Mirzapur and Allahabad districts of Uttar Pradesh.
- As per the projections, the project will benefit 1 lakh 70 thousand farmers of Mirzapur and Allahabad districts.

About Son River:

- Son River of central India is the second largest of the Ganges's southern tributaries after Yamuna River.
- The Son originates near Amarkantak in Madhya Pradesh just east of the headwater of the Narmada River, and flows north-northwest through Madhya Pradesh state before turning sharply eastward where it encounters the southwest-northeast-Kaimur Range.
- Son is an extension of the Narmada Valley, and the Kaimur Range an extension of the Vindhya Range.

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Indian Meteorological Department

Why in News?

- The Government is taking various steps to further improve the accuracy of predictions made by the Indian Meteorological Department (IMD).

Forecast Performance:

- The absolute error of the IMD's monsoon forecast for seasonal rainfall has shown a significant decrease compared to previous years after the implementation of the new Statistical Ensemble Forecasting System in 2007.
- The IMD was able to predict the deficient monsoon rainfall experienced during 2014 and 2015 accurately, as various measures have been taken to upgrade the IMD forecast system to "further improve prediction accuracy".
- Under the Monsoon Mission, a new dynamical prediction system for long range forecasting of Indian monsoon has been implemented by the IMD.
- The IMD is working to improve the skill of this dynamical prediction system in collaboration with Indian and foreign academic institutions.

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General Studies-2

DNA Technology (Use and Application) Regulation Bill, 2018

Why in News?

India's proposed DNA databank, to be used during investigation into crimes or to find missing persons, will not permanently store details of people.

The DNA details will be removed, subject to "judicial orders," said a senior official in the Department of Biotechnology.

The rules will come after Parliament approves the DNA Technology (Use and Application) Regulation Bill, 2018, the latest version of the DNA 'profiling' Bill framed by the Department of Biotechnology in 2015.

About DNA Technology (Use and Application) Regulation Bill 2018.

Details:

- The primary intended purpose for enactment of "The DNA Technology (Use and Application) Regulation Bill" is for expanding the application of DNA-based forensic technologies to support and strengthen the justice delivery system of the country.
 - The utility of DNA based technologies for solving crimes, and to identify missing persons, is well recognized across the world.
 - By providing for the mandatory accreditation and regulation of DNA laboratories, the Bill seeks to ensure that with the proposed expanded use of this technology in the country, there is also the assurance that the DNA test results are reliable and the data remain protected from misuse or abuse in terms of the privacy rights of our citizens.
 - Speedier justice delivery.
 - Increased conviction rate.
 - Bill's provisions will enable the cross-matching between persons who have been reported missing on the one hand and unidentified dead bodies found in various parts of the country

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on the other, and also for establishing the identity of victims in mass disasters.

National Commission for Protection of Child Rights (NCPCR)

Why in News?

NCPCR has come up with a model fee regulatory framework for unaided private schools.

The framework:

- The framework is for private unaided schools – which are 23% of the total schools in India and cater to 36% of the total population of children attending school.
- The framework is a model document that may be recommended to states where the fee regulation mechanism does not work effectively.
- According to the draft regulations, if a school violates the norms provided in the uniform fee framework, the respective government can bar the school from taking new admissions for the next academic year or impose fine equivalent to 10% of the total revenue generated by the school or society or trust in the preceding year.

Recommendations:

- A 10% yearly cap on fee hike in private, unaided schools.
- Set up a district fee regulatory authority in states to monitor school fee increases.

About NCPCR:

- The National Commission for Protection of Child Rights (NCPCR) was set up in March 2007 under the Commission for Protection of Child Rights Act, 2005.
- It works under the administrative control of the Ministry of Women & Child Development.
- The Child is defined as a person in the 0 to 18 years age group.

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- The Commission's Mandate is to ensure that all Laws, Policies, Programmes, and Administrative Mechanisms are in consonance with the Child Rights perspective as enshrined in the Constitution of India and also the UN Convention on the Rights of the Child.

S-400 air defence systems

India is going ahead with the purchase of S-400 air defence systems from Russia despite American concerns, and has told the U.S. that it is for them to address concerns over its recent Russia sanctions.

About S-400 Missile:

The **S-400 Triumph**, previously known as the **S-300PMU-3**, is an [anti-aircraft](#) weapon system developed in the 1990s by Russia's [Almaz Central Design Bureau](#) as an upgrade of the [S-300](#) family.

It has been in service with the [Russian Armed Forces](#) since 2007.

The S-400 uses four missiles to fill its performance envelope: the very-long-range 40N6 (400 km), the long-range 48N6 (250 km), the medium-range 9M96E2 (120 km) and the short-range 9M96E (40 km).

The S-400 was described by [The Economist](#) in 2017 as "one of the best air-defence systems currently made [UNSC Resolution 2427](#)

Why in News?

The United Nations Security Council (UNSC) has adopted Resolution 2427. The resolution has won unanimous approval of the 15 members of the council.

What is Resolution 2427 ?

The resolution is aimed at further crystalizing the protection of children in armed conflicts, including by combating their recruitment by non-State armed groups and treating formerly recruited children primarily as victims.

Highlights of the resolution:

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- It strongly condemns the recruitment and use of children by parties to armed conflict as well as their re-recruitment, killing and maiming, rape and other forms of sexual violence, and abductions.
- It also condemns attacks against schools and hospitals and the denial of humanitarian access by parties to armed conflict and all other violations of international law committed against children in situations of armed conflict.
- It demands that all relevant parties immediately put an end to such practices and take special measures to protect children.
- It also emphasizes the responsibility of all states to put an end to impunity and to investigate and prosecute those responsible for genocide, crimes against humanity, war crimes and other egregious crimes perpetrated against children.
- The resolution reiterates the Security Council's readiness to adopt targeted and graduated measures against persistent perpetrators of violations and abuses committed against children.
- It calls on member states and the United Nations to mainstream child protection into all relevant activities in conflict prevention, conflict and post-conflict situations with the aim of sustaining peace and preventing conflict.

World Customs Organisation (WCO)

Why in News?

- India has become the Vice-Chair (Regional Head) of the Asia Pacific Region of World Customs Organisation (WCO) for a period of two years, from July, 2018 to June, 2020.

Membership of WCO

- The WCO has divided its Membership into six Regions. Each of the six Regions is represented by a regionally elected Vice-Chairperson to the WCO Council.

About WCO:

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- WCO represents **182 Customs administrations** across the globe that collectively process approximately 98% of world trade.
- As the global centre of Customs expertise, the WCO is the only international organization with competence in Customs matters and can rightly call itself the voice of the international Customs community.

Central Adoption Resource Authority (CARA)

Why in News?

The Minister of Women and Child Development, Smt Maneka Sanjay Gandhi has directed state governments to ensure that all the child care institutions should be registered and linked to CARA within the next one month.

The mandatory registration of CCIs and linking to Central Adoption Resource Authority (CARA) has been provided in Juvenile Justice (Care and Protection of Children) Act, 2015 which came into force more than two years ago but some orphanages had challenged the validity of this clause.

About CARA

- Central Adoption Resource Authority (CARA) is a statutory body of Ministry of Women & Child Development, Government of India.
- It functions as the nodal body for adoption of Indian children and is mandated to monitor and regulate in-country and inter-country adoptions.
- CARA is designated as the Central Authority to deal with inter-country adoptions in accordance with the provisions of the Hague Convention on Inter-country Adoption, 1993, ratified by Government of India in 2003.
- CARA primarily deals with adoption of orphan, abandoned and surrendered children through its associated /recognised adoption agencies.

Committee set up to synergise NCC and NSS

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- Government has decided to set up a committee under the Chairmanship of Shri Anil Swarup, former Secretary, School Education, with suitable representations from NCC, M/o Youth Affairs and Ministry of HRD to suggest measures to strengthen National Cadet Corps (NCC) and National Service Scheme (NSS).

Mandate of Committee:

- The Committee will deal with on issues like expansion, strengthening training infrastructure, rationalizing resources, reducing manpower deficiency affecting NCC and NSS.
- The Committee will also submit recommend for building synergies between these two institutions viz. NCC and NSS and further strengthen them for empowering the youth.

About NCC:

- At present, there are 13.5 lakh cadets in NCC in the age group of 12 to 26 years with pan India presence in about 703 out of 716 districts.
- There are a large number of educational institutions in the country including as much as 8600 on waitlist in which NCC is yet to be extended.
- There is also an existing shortage in the NCC manpower across the categories ranging from 5% to 36%.
- The NCC has an annual budget allocation of about Rs.2200 crore with Central Government share of about Rs.1600 crore.

Challenges:

- NCC, with this meagre resources, is not able to expand itself and to cover all the districts of the country and cater to the needs of waitlisted educational institutions.
- NSS has been playing a very active role in the service of the nation, particularly in the Government's Programme such as Swachh Bharat Mission.

Child marriages

Why in News?

- The Women and Child Development (WCD) Ministry is set to move the cabinet to make all child marriages invalid.

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- The proposal of the ministry, if approved, would amend the law that allows child marriages to continue, despite an [October 2017 Supreme Court ruling](#) that “sexual intercourse with a minor wife amounts to rape, as under no circumstance can a child below 18 years give consent, express or implied, for sexual intercourse”.

Present Scenario:

- Currently, child marriages are valid in India, but can be annulled if a case is filed in a district court by either of the two contracting parties within two years of becoming an adult, or through a guardian in case of minors.

Proposed Amendment:

- The ministry seeks to amend section 3 of the Prohibition of Child Marriage Act, under which a child marriage is only voidable at the option of the contracting parties.
- The legal age for marriage in India is 18 for a woman and 21 for a man.
- According to a study based on Census 2011, there are 2.3 crore child brides in the country.

Statistics of Child Marriage:

- The National Family Health Survey (NFHS) 2015-16 also showed that 26.8 per cent women were married off before they turned 18.
- According to the NFHS 2015-16, nearly eight per cent girls in the 15-19 age group had already become mothers or pregnant at the time of the survey.

Issues Associated:

- The World Health Organisation, in a report dealing with the issue of child brides, found that though 11 per cent of the births worldwide are among adolescents, they account for 23 per cent of the overall burden of diseases.

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- Therefore, a child bride is more than doubly prone to health problems than a grown up woman,” the apex court had said last year, expressing dismay over the alarming number of child brides in the country.

Indo-US Bilateral Defence Cooperation

Why in News?

As part of Indo-US Bilateral Defence Cooperation, the 7th Defence Technology and Trade Initiative (DTTI) meeting was held between India and the US delegation here today.

About the Meeting:

- The meetings are held twice a year, alternately in India and the USA with the aim to bring sustained leadership focus to the bilateral defence trade relationship and create opportunities for co-production and co-development of defence equipment.
- Indian government has taken a number of steps to give an impetus to Indian defence industry and its flagship ‘Make in India’ initiative.

Importance:

- Given the large defence outlay planned for India’s defence requirements in the future, the contribution of our defence industry, in partnership with foreign OEMs to begin with, is expected to be significant.
- This would also contribute to overall growth of the economy and will also have several opportunity benefits and downstream effects.
- India-US defence cooperation is one of the core pillars of the defence relationship between the two countries and is continuing apace.

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- US has designated India as a 'Major Defence Partner' and expected the defence relationship between the two countries to be further strengthened.
- DTTI is an important forum leading to the 2+2 dialogue between the two countries.

Eradication of Child Labour

- Child Labour is an outcome of various socio-economic problems such as poverty, economic backwardness, illiteracy etc.

Child Labour in India:

- As per 2011 Census, the number of main workers in the age group of 5-14 years in the country is 43.53 lakh which shows a decline from 57.79 lakh as per 2001 Census.
- Under Legislative action plan Government has enacted the Child Labour (Prohibition & Regulation) Amendment Act, 2016 which came into force w.e.f 01.09.2016.

Steps Taken by Govt.

- The Amendment Act, inter alia, provides for complete prohibition on employment or work of children below 14 years and also prohibits employment of adolescents (14-18 years) in hazardous occupations and processes.
- Ministry of Labour & Employment has circulated an Action Plan to all States/UTs indicating the provisions and related actions by State Governments/UTs for enforcement of the Child Labour (Prohibition and Regulation) Amendment Act, 2016.
- Government has framed the Child Labour (Prohibition & Regulation) Amendment Rules, 2017 which inter alia specifies the duties and responsibilities of State Governments and District Authorities to ensure effective enforcement of the provisions of the Act.
- Government has also devised a Standard Operating Procedure (SOP) as a ready reckoner for trainers, practitioners and

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enforcing and monitoring agencies and the same has been forwarded to all States/UTs.

- To ensure effective enforcement of the provisions of the Child Labour Act and smooth implementation of the National Child Labour Project (NCLP) Scheme a separate online portal PENCIL (Platform for Effective Enforcement for No Child Labour) has been developed.
- The Portal connects Central Government to State Government(s), District(s) and all District Project Societies.
- Further the Ministry has instructed all the concerned States where NCLP Scheme is sanctioned, to form State Resource Centre (SRC) under the chairmanship of State Labour Secretary.

Functions of SRC

- Monitor the enforcement of Child Labour Act, coordinate for the rescue of children and adolescents, child tracking system and supervise all the functions through PENCIL portal.
- SRC would also prepare and implement awareness generation plan to curb the menace of child labour in the State.

PMEGP Generated Over 11 Lakh Employments in Last Three Years

- Prime Minister's Employment Generation Programme, PMEGP is estimated to have generated over 11,13, 000 employments during the last three years i.e. 2015-16 to 2017-18.

About PMEGP

- PMEGP is a credit linked subsidy scheme, for setting up of new micro-enterprises and to generate employment opportunities in rural as well as urban areas of the country through KVIC, State Khadi & Village Industries Board (KVIB) and District Industries Centre (DIC).
- Under the PMEGP, general category beneficiaries can avail of margin money subsidy of 25% of the project cost in rural areas and 15% in urban areas.
- For beneficiaries belonging to SC/ST/Women/PH/Minorities/Ex-Servicemen/NER, the margin money subsidy is 35% in rural areas and 25% in urban areas.

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- The maximum cost of projects is Rs.25 lakh in the manufacturing sector and Rs.10 lakh in the service sector.

Proposal to Change Sedition Law

- The Ministry of Home Affairs has written to the Ministry of Law and Justice to request the Law Commission of India to study the usage of the provisions of Section 124 A (Sedition) of IPC and suggest amendments, if any.
- The Law Commission has undertaken the examination of Section 124 A and is considering the scope and ambit of the law on sedition, in order to ascertain under what circumstances it can legitimately be invoked.

About Sedition Law:

- [Section 124-A](#) of the [Indian Penal Code](#), in its current form, stipulates that
- Whoever, by words, either spoken or written, or by signs, or by visible representation, or otherwise, brings or attempts to bring into hatred or contempt, or excites or attempts to excite disaffection towards the Government established by law in India, shall be punished with imprisonment for life, to which fine may be added, or with imprisonment which may extend to three years, to which fine may be added, or with fine.
- [Israel 'nation state' law](#)
- The ['nation state' law passed by Israel's Parliament](#) amid strong protests by Opposition lawmakers, has raised concerns about its commitment to peace in the region.

What is the Law about?

- The legislation, which will become one of Israel's powerful Basic Laws that have constitutional status, lays down that "Israel is the historic homeland of the Jewish people and they have an exclusive right to national self-determination in it".

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- The law strips Arabic, the first language of 1.8 million citizens, of its national language status;
- states that Jerusalem, “whole and united”, is its capital;
- and vows to “promote and encourage” the establishment and consolidation of Jewish settlements, which it sees as a national value.

Concerns:

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- By providing exclusive right to national self-determination only to the Jewish people and by downgrading Arabic’s status, the law sends a clear message.
- The new Basic Law sets the stage for that transition, challenging the basic concepts of equality, which even Israel’s declaration of independence promised to all its inhabitants.
- The emphasis on Jerusalem and the promise to promote settlements pose a direct threat to any peace process with the Palestinians.
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- Besides, if Israel sees Jewish settlements as a national value and continues to promote them in the Palestinian territories, it cannot command confidence when it says it is still committed to the two-state solution.
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- The law further erodes the credibility of Israel’s professed support of an independent Palestinian state.

General Studies-3

Square Kilometre Array (SKA) project

Why in News?

South Africa on Friday formally unveiled a super radio telescope, a first phase of what will be the world's largest telescope in a project to try to unravel the secrets of the universe.

About SKA Project:

- The Square Kilometre Array (SKA) project is an international effort to build the world's largest radio telescope, with eventually over a square kilometre (one million square metres) of collecting area.
- The SKA will eventually use thousands of dishes and up to a million low-frequency antennas that will enable astronomers to monitor the sky in unprecedented detail and survey the entire sky much faster than any system currently in existence.
- Its unique configuration will give the SKA unrivalled scope in observations, largely exceeding the image resolution quality of

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the Hubble Space Telescope. It will also have the ability to image huge areas of sky in parallel a feat which no survey telescope has ever achieved on this scale with this level of sensitivity.

- Both South Africa's Karoo region and Western Australia's Murchison Shire were chosen as co-hosting locations for many scientific and technical reasons, from the atmospheric above the desert sites, through to the radio quietness, which comes from being some of the most remote locations on Earth.
- Whilst 10 member countries are the cornerstone of the SKA, around 100 organisations across about 20 countries are participating in the design and development of the SKA.

Index Numbers of Wholesale Price in India

- The official Wholesale Price Index for 'All Commodities' (Base: 2011-12=100) for the month of June, 2018 rose by 1.1 percent to 119.2 (provisional) from 117.9 (provisional) for the previous month.

INFLATION

- The annual rate of inflation, based on monthly WPI, stood at 5.77% (provisional) for the month of June, 2018 (over June, 2017) as compared to 4.43% (provisional) for the previous month and 0.90% during the corresponding month of the previous year.
- The movement of the index for the various commodity groups is summarized below:-

IIP Composition:

- **PRIMARY ARTICLES --(Weight 22.62%)**
- **FUEL & POWER-- (Weight 13.15%)**
- **MANUFACTURED PRODUCTS --(Weight 64.23%)**

Net Neutrality:

Why in News?

- In a vital decision that will help secure the rights of Internet users in the country, the Telecom Commission has approved the

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recommendations of the [Telecom Regulatory Authority of India](#) (TRAI) on net neutrality.

What is Net Neutrality?

Net neutrality is the principle that [Internet service providers](#) treat all data on the [Internet](#) equally, and not discriminate or charge differently by user, content, website, platform, application, type of attached equipment, or method of communication.

- For instance, under these principles, internet service providers are unable to intentionally block, slow down or charge money for specific websites and online content.
- This is sometimes enforced through government mandate.

Benefits of Net Neutrality:

- Combining this approval with the fact that TRAI had barred telecom service providers from charging differential rates for data services (zero rating, for example), India will now have among the strongest net neutrality regulations.
- This is as it should be. Net neutrality is the basic principle of an open Internet that does not allow for content discrimination by ISPs.
- The user is free to access any web location at the same paid-for speed without any discrimination by the ISP.
- This proviso has helped [democratise the Internet and undergird its growth](#) from a networked system of computers that enabled e-commerce, social interaction, knowledge flow and entertainment, among other functions.

Arguments Against:

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- The other argument for the repeal has been a functional one, suggesting that the Internet is very different today, controlled by a handful of big companies, unlike the much more egalitarian environment earlier; and that therefore, the principle is redundant now.
- This is misleading. In India, for instance, the steep growth in Internet access and use has allowed for newer services to thrive.
- The government should now ensure that net neutrality is followed in practice.

Harrier Birds:

Why in News?

- Harrier birds, a migratory raptor species that regularly visits vast swathes of India, are declining.
- This may foretell lurking dangers to the country's grasslands.

Observation Made:

- While a general declining trend was observed in all the monitored sites, researchers noted the most dramatic changes at the Rollapadu Bustard Sanctuary in Andhra Pradesh's Kurnool district, one of the largest.
- In the mid-1990s, an estimated 1,000 birds roosted here.
- By 2016, the number was down to less than 100 birds. In Hessarghatta on the outskirts of Bengaluru, Western Marsh Harriers declined significantly, leaving the area nearly deserted.

Reasons for Population Decline:

- The gravest concern is the loss of grasslands, either to urbanisation or to agriculture.
- In February-March, peak season for the arrival of the birds, farmlands are burnt or over-grazed.

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- Of the 15 roosting sites surveyed, eight no longer exist as grasslands, and only five are protected.
- Excessive use of pesticides in farms in and around the roosting sites could also be a reason for the lowered population counts.
- In crops such as cotton, the use of pesticides kills grasshoppers, the harriers' primary prey, and could lead to mortality of the birds themselves as they are on the top of the food chain.

IUCN Status:

- Globally, of the 16 harrier species, only two are listed as endangered by the International Union for Conservation of Nature, even though most of them are declining.
- While more intensive research is needed, the conservation of India's grasslands could be a start in protecting the magnificent migrators.

WPI Inflation:

Why in News?

- Inflation at the wholesale level quickened to 5.77% in June, the highest since December 2013, driven in large part by rising fuel prices, according to official data released on Monday.
- Growth in the Wholesale Price Index (WPI) accelerated in June from 4.43% in May, and is far higher than the 0.9% seen in June last year.

Cause for Rise:

- The real upward push in wholesale inflation came from the crude petroleum and natural gas segment, which saw inflation surging to 48.7% in June from 26.9% in the previous month.

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- Similarly, the fuel and power segment saw inflation quicken to 16.2% from 11.2% over the same period.
- Wholesale inflation in manufacturing accelerated in June to 4.17% from 3.73% in May.

About WPI

- Wholesale Price Index (WPI) measures the average change in the prices of commodities for bulk sale at the level of early stage of transactions.
- The index basket of the WPI covers commodities falling under the three major groups namely Primary Articles, Fuel and Power and Manufactured products.
- Weights given to each commodity covered in the WPI basket is based on the value of production adjusted for net imports. WPI basket does not cover services.
- In India WPI is also known as the [headline inflation rate](#).
- In India, [Office of Economic Advisor](#) (OEA), Department of Industrial Policy and Promotion, Ministry of Commerce and Industry calculates the WPI.

The main uses of WPI are the following:

- to provide estimates of inflation at the wholesale transaction level for the economy as a whole. This helps in timely intervention by the Government to check inflation in particular, in essential commodities, before the price increase spill over to retail prices.
- WPI is used as deflator for many sectors of the economy including for estimating [GDP](#) by Central Statistical Organisation (CSO).
- WPI is also used for [indexation](#) by users in business contracts.
- Global investors also track WPI as one of the key macro indicators for their investment decisions.

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M777 Howitzer

Why in News?

- The Army will resume the trials of the U.S.-made M777 ultralight howitzer in the Pokhran firing range. The trials were suspended last September after the barrel of a gun burst during firing.
- In November 2016, India signed a deal with the U.S. government under the Foreign Military Sales (FMS) programme for 145 M777 guns at a cost of \$737 million.

About M777

- The M777 is a 155-mm, 39-calibre towed artillery gun made of titanium and aluminium alloys and weighs just four tonnes, making it transportable slung under helicopters.
- Of the 145 guns, 25 will be imported while the remaining 120 will be assembled in the country in partnership with the Mahindra group. Deliveries are slated to commence in March 2019.

BrahMos Missile:

Why in News?

- BrahMos, the supersonic cruise missile was successfully test-fired at 1017 hrs today from the Integrated Test Range (ITR) at Balasore, Odisha.
- The test-firing conducted from a Mobile Autonomous Launcher was part of service life extension programme for Indian Army under extreme weather condition.

Significance:

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- BrahMos has proved again all-weather capability flying in sea-state 7 with waves as high as 9 meters.
- DRDO's range capability to operate in the most severe weather condition has also been validated at ITR Balasore.

About BrahMos:

- BrahMos is a joint venture between DRDO of India and NPOM of Russia.
- The **BrahMos** (designated **PJ-10**) is a medium-range [ramjet supersonic cruise missile](#) that can be launched from submarine, ships, aircraft, or land. It is the fastest supersonic cruise missile in the world.
- It is based on the Russian [P-800 Oniks](#) cruise missile and other similar sea-skimming Russian cruise missile technology.
- The name BrahMos is a [portmanteau](#) formed from the names of two rivers, the [Brahmaputra](#) of India and the [Moskva](#) of Russia.
- BrahMos missile has established itself as a major force multiplier in modern-day complex battlefields with its impeccable land-attack, anti-ship capabilities with multi-role and multi-platform abilities.

Vikas engine

Why in News?

- All three satellite launch vehicles of the Indian Space Research Organisation (ISRO) are set to add muscle to their spacecraft lifting power in upcoming missions this year.
- The space agency has improved the thrust of the Vikas engine that powers all of them. The agency said the high-thrust engine qualified on Sunday after a ground test lasting 195 seconds (over three minutes).

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Main beneficiary

- The main beneficiary of the high-thrust Vikas engine is said to be the heavy-lifting GSLV-Mark III launcher, which ISRO expects will now put 4,000-kg satellites to space. This would be the third Mk-III and the first working one to be designated MkIII Mission-1 or M1.
- The first MkIII of June 2017 started with a 3,200-kg satellite and the second one is being readied for lifting a 3,500-kg spacecraft.

About Vikas Engine:

- The Vikas engine is used in the second stage of the light lifting PSLV; the second stage and the four add-on stages of the medium-lift GSLV; and the twin-engine core liquid stage of Mk-III.
- Petcoke

Why in News?

- The Petroleum Ministry has told the Supreme Court that it is in favour of a ban on the import of petroleum coke. However, the environment ministry is yet to take the final call and will consult with all stakeholders before arriving upon a decision.

Background:

- The apex Court had, in December last year, refused to lift the ban on the use of pet coke and furnace oil in many industrial units in Rajasthan, Uttar Pradesh and Haryana keeping in view the increasing level of pollution. It had also refused to give any relief to industrial units like the National Thermal Power Corporation Limited (NTPC) and Hindalco.

What is petcoke?

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- Petroleum coke, the bottom-of-the-barrel leftover from refining Canadian tar sands crude and other heavy oils, is cheaper and burns hotter than coal. But it also contains more planet-warming carbon and far more heart- and lung-damaging sulphur.

Concerns:

- The petcoke burned in factories and plants is contributing to dangerously filthy air in India, which already has many of the world's most polluted cities. It contains 17 times more sulfur than the limit set for coal, and a staggering 1,380 times more than for diesel.

Need for regulation:

- The country has seen a dramatic increase in sulfur dioxide and nitrogen dioxide emissions in recent years, concentrated in areas where power plants and steel factories are clustered. Those pollutants are converted into microscopic particles that lodge deep in the lungs and enter the bloodstream, causing breathing and heart problems.
- Petcoke, critics say, is making a bad situation worse across India. About 1.1 million Indians die prematurely as a result of outdoor air pollution every year, according to the Health Effects Institute, a nonprofit funded by the U.S. Environmental Protection Agency and industry.

Big Bang Theory

Why in News?

- On Tuesday, Google celebrated the 124th birth anniversary of Belgian astronomer Georges Lemaitre with a doodle.
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- Lemaitre is credited with what is popularly known as the Big Bang Theory, which says that the universe originated from a single atom, which he referred to as the Cosmic Egg.

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- He is also believed to be the first to have come up with the theory that the universe is expanding.
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- The doodle website depicts Lemaitre “within the constantly expanding universe that he first envisioned, surrounded by galaxies expanding outward just as he said they would.”

What is the Theory?

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- The **Big Bang theory** is the prevailing [cosmological model](#) for the [universe](#) from the [earliest known periods](#) through its subsequent large-scale evolution.
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- The model describes how the universe [expanded](#) from a very high-density and high-temperature state, and offers a comprehensive explanation for a broad range of phenomena, including the abundance of [light elements](#), the [cosmic microwave background](#) (CMB), [large scale structure](#) and [Hubble's law](#).

Promotion of GI Products

- The Government has undertaken several steps as a part of the campaign for promotion of Indian products registered as Geographical Indications (GIs).
- These include, participation in events to promote and create awareness on GIs through social media, involving State Governments, Union Territory Administration and other relevant organizations for facilitation of GI producers.
- All State Governments have been requested to appoint nodal officers for promotion of Geographical Indications from their respective states, establish facilitation cells for each GI from the state, undertake steps for GI awareness in consumers, undertake training of GI producers, take effective action against manufacture and sale of counterfeit GI products among others.

About GI Tag

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- A [geographical indication](#) (GI) is a name or sign used on certain products which corresponds to a specific geographical location or origin (e.g. a town, region, or country).
- [India](#), as a member of the [World Trade Organization](#) (WTO), enacted the [Geographical Indications of Goods \(Registration and Protection\) Act, 1999](#) has come into force with effect from 15 September 2003.
- GIs have been defined under Article 22(1) of the [WTO Agreement on Trade-Related Aspects of Intellectual Property Rights \(TRIPS\)](#) Agreement as: "Indications which identify a good as originating in the territory of a member, or a region or a locality in that territory, where a given quality, reputation or characteristic of the good is essentially attributable to its geographic origin.

Benefits of GI Tag:

- The GI tag ensures that none other than those registered as authorised users (or at least those residing inside the geographic territory) are allowed to use the popular product name.
- [Darjeeling tea](#) became the first [GI tagged](#) product in India, in 2004-05, since then by May 2017, 295 had been added to the list

India based Neutrino Observatory

Why in News?

- Environmental clearance for the project has been obtained.
- Application for Wildlife Clearance and Tamil Nadu Pollution Control Board (TNPCB) has been submitted.
- An 85 ton prototype mini-ICAL detector has been built and is working at IICHEP premises in Madurai.
- There is no possibility of seismic events triggered by work at the INO site.
- However, seismic monitoring has to be carried out during construction as an abundant measure of caution

About INO:

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- The India-based Neutrino Observatory (INO) Project is a multi-institutional effort aimed at building a world-class underground laboratory with a rock cover of approx.1200 m for non-accelerator based high energy and nuclear physics research in India.
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- The initial goal of INO is to study neutrinos.
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- Neutrinos are fundamental particles belonging to the lepton family.
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- They come in three flavours, one associated with electrons and the others with their heavier cousins the muon and the Tau.
-
- Determination of neutrino masses and mixing parameters is one of the most important open problems in physics today.
-
- The ICAL detector is designed to address some of these key open problems in a unique way.
-
- Over the years this underground facility is expected to develop into a full-fledged underground science laboratory for other studies in physics, biology, geology, hydrology etc.

Laser Interferometer Gravitational Wave Laboratory – India (LIGO)

Why in News?

- The Government of India has given ‘In-Principle’ approval for Construction and Operation of Laser Interferometer Gravitational Wave Laboratory – India (LIGO) in India in collaboration with LIGO Laboratory, United States of America.
- This is the third observatory identical to the two LIGO observatories in USA.
- Of the various sites surveyed for this project, the site in Hingoli District of Maharashtra has been selected as the primary site

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and the process of acquiring land for the project is in advanced stage.

About LIGO :

- The **Laser Interferometer Gravitational-Wave Observatory (LIGO)** is a large-scale [physics](#) experiment and observatory to detect cosmic [gravitational waves](#) and to develop gravitational-wave observations as an astronomical tool.
- Two large observatories were built in the United States with the aim of detecting gravitational waves by [laser interferometry](#).
- These can detect a change in the 4 km mirror spacing of less than a ten-thousandth the [charge diameter](#) of a [proton](#), equivalent to measuring the distance from [Earth](#) to [Proxima Centauri](#) (4.0208×10^{13} km) with an accuracy smaller than the width of a human hair

About Gravitational waves:

- Gravitational waves are 'ripples' in the fabric of space-time caused by some of the most violent and energetic processes in the Universe.
- Albert Einstein predicted the existence of gravitational waves in 1916 in his general theory of relativity.
- Einstein's mathematics showed that massive accelerating objects (such as neutron stars or black holes orbiting each other) would disrupt space-time in such a way that 'waves' of distorted space would radiate from the source (like the movement of waves away from a stone thrown into a pond).
- Furthermore, these ripples would travel at the speed of light through the Universe, carrying with them information about their cataclysmic origins, as well as invaluable clues to the nature of gravity itself.
- The strongest gravitational waves are produced by catastrophic events such as colliding black holes, the collapse of stellar cores (supernovae), coalescing neutron stars or white dwarf stars, the slightly wobbly rotation of neutron stars that are not perfect

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spheres, and the remnants of gravitational radiation created by the birth of the Universe itself.

Chandrayaan-2

Why in News?

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- Indian Space Research Organisation (ISRO) is planning to deploy a rover on the lunar surface through Chandrayaan-2 mission.
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- The instruments on Rover will conduct in-situ analysis of elements such as Na, Mg, Al, Si, etc; in the vicinity of landing site.
-
- Mining and extracting Helium-3 deposits is not planned.

About Chandrayaan-2

- **Chandrayaan-2** is India's second [lunar exploration](#) mission after [Chandrayaan-1](#).
- Developed by the [Indian Space Research Organisation](#) (ISRO), the mission is planned to be launched to the [Moon](#) by a [Geosynchronous Satellite Launch Vehicle](#) (GSLV Mk II).
- It includes a lunar [orbiter](#), [lander](#) and [rover](#), all developed by [India](#).
- Chandrayaan-2 is scheduled to be launched no earlier than October 2018, and will attempt to soft land a lander and rover in a high plain between two craters, [Manzinus C](#) and [Simpelius N](#), at a latitude of about 70° south.
- If successful, Chandrayaan-2 will be the first-ever mission to land a rover near the [lunar south pole](#).
- According to ISRO, this mission will use and test various new technologies and conduct new experiments.
- The wheeled rover will move on the lunar surface and will perform on-site chemical analysis.
- The data will be relayed to Earth through the Chandrayaan-2 orbiter, which will piggyback on the same launch.
- Total approved cost of the Chandrayaan-2 Mission is Rs.603.00 crores.

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Cabinet approves determination of Fair and Remunerative Price payable by Sugar Mills for 2018-19 sugar season

Keeping in view the interest of sugarcane farmers, the Cabinet Committee on Economic Affairs chaired by Prime Minister Shri Narendra Modi has approved the Fair and Remunerative Price (FRP) of sugarcane for sugar season 2018-19 at Rs. 275/- per quintal.

Background:

The FRP has been determined on the basis of recommendations of Commission for Agricultural Costs and Prices (CACP) and after consultation with State Governments and other stake-holders.

Recommended FRP has been arrived at by taking into account various factors such as:

cost of production, overall demand-supply situation, domestic and international prices, inter-crop price parity, terms of trade prices of primary by-products, and likely impact of FRP on general price level and resource use efficiency.

IAF participation in Ex Pitch Black 2018

The Indian Air Force for the first time is participating with fighter aircraft in Exercise Pitch Black 2018 (PB-18), which is scheduled from 24 Jul 18 to 18 Aug 18 in Australia.

Ex Pitch Black is a biennial multi-national large force employment warfare exercise hosted by the Royal Australian Air Force (RAAF).

Advantages of Such Exercises:

The exercise will provide unique opportunity for exchange of knowledge and experience with these nations in a dynamic warfare environment.

Participation in multinational air exercise assumes importance in view of the continued engagement of the IAF with friendly foreign countries.

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Over the last decade, IAF has been actively participating in operational exercises hosted by various countries, wherein collaborative engagements undertaken with the best air forces in the world.

During the transit to Australia, IAF contingent will also have constructive engagement with Indonesian and Malaysian Air Forces.

Privatisation of Defence Production

The Government is promoting privatisation in Defence Production.

Till June 2018, Department of Industrial Policy & Promotion (DIPP) has issued 379 licenses to 230 Indian Companies for manufacture of various licensable defence items.

Apart from this, one manufacturing license has also been issued by Ministry of Home Affairs for Small Arms and ammunitions.

FDI Rule in Defence Sector:

As per extant Foreign Direct Investment (FDI) policy, in defence sector, foreign investment upto 49% is permitted under automatic route.

Foreign investment beyond 49% (upto 100%) is permitted through government approval in cases resulting in access to modern technology in the country or for other reasons to be recorded.

FDI limit for defence sector has also been made applicable to Manufacturing of Small Arms and Ammunitions covered under Arms Act 1959.

Further, foreign investment in defence sector is subject to other conditions of extant FDI Policy as amended from time to time.

Progress Achieved:

So far, 41 FDI proposals / Joint Ventures have been approved for manufacturing of various defence equipment both in public and private sectors,

FDI amounting to US \$ 5.13 million has been received in the Defence Industry Sector from April 2000 to March 2018.

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Grievance Redressal Officers for processing the complaints/information under e-way Bill System

As per the decision of the GST Council, e-way bill system has been rolled-out in a staggered manner across the country.

E-way bills are getting generated successfully and till 17th July, 2018, more than Thirteen Crore and Fifty Lakh e-way bills have been generated which includes Six Crore and Fifty Lakh E-way bills for Intra-State movement of goods.

Grievance Redressal Officers have been appointed by both the Central and State Governments under the provisions of e-way bill rules for processing the complaints/information uploaded by taxpayers/transporters regarding detention of their vehicle.

About E-way Bill:

EWay Bill is an electronic way bill for movement of goods which can be generated on the eWay Bill Portal.

Transport of goods of more than Rs. 50,000 (Single Invoice/bill/delivery challan) in value in a vehicle cannot be made by a registered person without an eway bill.

Alternatively, Eway bill can also be generated or cancelled [through SMS](#), Android App and by Site-to-Site Integration(through API).

When an eway bill is generated a unique eway bill number (EBN) is allocated and is available to the supplier, recipient, and the transporter.

India's Arctic Mission:

Three decades after its first mission to Antarctica, the government is refocusing priorities to the other pole — the Arctic—because of opportunities and challenges posed by climate change.

Steps Taken:

This month, it has renamed the National Centre for Antarctic and Ocean Research (NCAOR) — since 1998, charged with conducting expeditions to India's base stations to the continent — as the National Centre for Polar and Ocean Research.

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It's also in talks with Canada and Russia, key countries with presence in the Arctic circle, to establish new observation systems, according to a source.

Now, India only has one Arctic observation station near Norway.

More expeditions

While annual missions to maintain India's three bases in Antarctica will continue, the new priorities mean that there will be more expeditions and research focus on the other poles.

Reasons :

Climate change,, person familiar with deliberations, was a decisive factor in India re-thinking priorities.

Sea ice at the Arctic has been melting rapidly — the fastest in this century.

That means several spots, rich in hydrocarbon reserves, will be more accessible through the year via alternative shipping routes.

India's Present engagement in Region:

India is already an observer at the Arctic Council — a forum of countries that decides on managing the region's resources and popular livelihood

In 2015, set up an underground observatory, called IndARC, at the Kongsfjorden fjord, half way between Norway and the North Pole.

About Arctic Council

The **Arctic Council** is a high-level [intergovernmental](#) forum which addresses issues faced by the [Arctic](#) governments and people living in the Arctic region.

The member states consist of the following:

- [Canada](#)
- [Denmark](#); representing
 - [Greenland](#)

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- [Faroe Islands](#)
- [Finland](#)
- [Iceland](#)
- [Norway](#)
- [Russia](#)
- [Sweden](#)
- [United States](#)