GS SCORE

An Institute for Civil Services

PIB

FORTNIGHTLY COMPILATION

16th April to 31st May, 2019

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by: Rohit Lodha — 22 JUNE

POL SC. Test Series
by: Dr. Piyush Chaubey — 23 JUNE

PUB ADM. Test Series
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Total 10 Tests

- 7 Sessions for Essay Writing including Tests
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- Model Essay for every test
- 25 Topics as Practice Work-book with Model Hints

Class Starts 23 JUNE

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1 COP MEETINGS OF BASEL, ROTTERDAM AND STOCKHOLM CONVENTIONS

CONTEXT:

- The joint meetings of three conventions on chemicals and waste that is the fourteenth meeting of the Conference of the Parties (COP) to **Basel Convention** on the Control of Transboundary Movement of Hazardous Wastes and their Disposal (COP 14) was held along with the ninth meeting of the COP to **Rotterdam Convention** on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade and the ninth meeting of the COP to **Stockholm Convention** on Persistent Organic Pollutants.
- The theme of the meetings this year was "**Clean Planet, Healthy People: Sound Management of Chemicals and Waste**".

ABOUT:

- An Indian delegation of Ministry of Environment, Forest and Climate Change, and comprising other ministries such as Agriculture, Chemicals, and Electronics and Information Technology participated in the meeting held in Geneva, Switzerland, from 29 April to 10 May 2019.
- In Basel Convention, two important issues were discussed and decided, i.e. technical guidelines on e-waste and inclusion of plastic waste in the PIC procedure.
- The draft technical guidelines stipulated the conditions when used electrical and electronic equipment destined for direct reuse, repair, refurbishment or failure analysis should be considered as non-waste.
- India had major reservations regarding these provisions as in the name of re-use, repair, refurbishment and failure analysis there was a possibility of dumping from the developed world to the developing countries including India in view of the growing consumption of electronic equipment and waste across the world.
- The Indian delegation strongly objected the proposed decision on these guidelines during plenary and did not allow it to be passed by the conference of the parties (COP).
- Many rounds of multilateral and bilateral negotiations happened under the aegis of the Convention Secretariat in order to address India's concerns which were supported by a large number of other developing countries.
- On the final day of the COP, a modified decision was adopted in which all the concerns raised by India were incorporated. These were:
- dumping of e-waste in developing countries;
- recognition that the interim guideline has issues and further work is required specially on the provision on distinguishing waste from non-waste;
- the guidelines were adopted on an interim basis only;
- the tenure of the expert working group was extended to address the concerns raised by India;
- and the usage of interim guidelines to be done only on a pilot basis.
- Due to the strong intervention by the Indian delegation, it was possible to defend the country's interest against the potential dumping of e-waste by developed countries and thereby opened a window for further negotiations and corrections in the interim technical guidelines on e-waste.
- Under the Basel Convention, another major achievement of COP 14 was the decision to amend the convention to include unsorted, mixed and contaminated plastic waste under PIC (Prior Informed Consent) procedure and improve the regulation of its transboundary movement. This is a significant step taken towards addressing plastic pollution which has become a major environmental concern across the globe.
- Further, Basel Convention has also adopted partnership on plastic which was welcomed by the Indian delegation. These steps will help prevent the illegal dumping of plastic wastes in developing countries. India has already imposed a complete prohibition of import of solid plastic waste into the country. India has also made an international commitment to phase-out single-use plastic. India

fully supported this exercise and one of the members of the Indian delegation was co-chair in the contact group which negotiated this agreement for amendment in the annexes of Basel Convention to bring plastic waste under PIC procedure.

- Under the Stockholm Convention the COP decided to list "Dicofol" in Annex A without any exemption. The Perfluorooctanoic Acid (PFOA) was also listed with some exemptions in the Annex A of the Stockholm Convention.
- Under the Rotterdam Convention, two new chemicals (Phorate and HBCD) were added in the list for mandatory PIC procedure in international trade.

Basel, Rotterdam and Stockholm Conventions

BASEL CONVENTION

Title: Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal

Entry into force: 10 September 1998

Number of Parties: 183 (as of February 2016)

Objectives: to protect human health and the environment against the adverse effects of hazardous wastes

Scoep: hazardus wastes based on their origin and/or composition and their characteristics and other wastes (household waste and ininerator ash)

Key Provisions:

i. Minimization of the generation of hazardous and other wastes

ii. Obligation to ensure the environmentally sund management of hazardous and other wastes

ROTTERDAM CONVENTION

Title: Convention on the Prior informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade

Entry into force: 24 February 2004

Number of parties: 152 (as of February 2016)

Objectives: To promote shared responsibility and cooperative efforts among Parties in the international trade of certain hazarduous chemicals

Scope: pesticides and industrial chemicals that I have been banned or severely restricted for health or environmental reasons by Parties.

Key Provisions:

i. Prior informed Consent procedure on a naational decision making process on import of hazardous chemicals

ii. Exchange of information on a broad range of potentially hazarodous chemicals

STOCKHOLM CONVENTION

Title: Convention on persistent Organic Pollutants

Entry into force: 17 May 2004

Number of parties: 179 (as of February 2016)

Objectives: protect human health and the environment from peristent organic pollutants

Scope: 24 persistent organic pollutants

Key provisions:

i. Elimination of persistent organic pollutants, listed in annex A

ii. Restriction of persistent organic pollutantsm, listed in annex B

The Rotterdam Convention

- The Rotterdam Convention is a multilateral treaty to promote shared responsibilities in relation to importation of hazardous chemicals.
- The convention promotes open exchange of information and calls on exporters of hazardous chemicals to use proper labeling, include directions on safe handling, and inform purchasers of any known restrictions or bans.
- Signatory nations can decide whether to allow or ban the importation of chemicals listed in the treaty, and exporting countries are obliged to make sure that producers within their jurisdiction comply.
- In 2012, the Secretariats of the Basel and Stockholm conventions, as well as the UNEP-part of the Rotterdam Convention Secretariat, merged to a single Secretariat with a matrix structure serving the three conventions.

Basel Convention

- The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, usually known as the Basel Convention, is an international treaty that was designed to reduce the movements of hazardous waste between nations, and specifically to prevent transfer of hazardous waste from developed to less developed countries (LDCs). It does not, however, address the movement of radioactive waste.

- The Convention is also intended to minimize the amount and toxicity of wastes generated, to ensure their environmentally sound management as closely as possible to the source of generation, and to assist LDCs in environmentally sound management of the hazardous and other wastes they generate.
- The Convention was opened for signature on 22 March 1989, and entered into force on 5 May 1992. As of October 2018, 186 states and the European Union are parties to the Convention. Haiti and the United States have signed the Convention but not ratified it.

Stockholm Convention

- Stockholm Convention on Persistent Organic Pollutants is an international environmental treaty, signed in 2001 and effective from May 2004, that aims to eliminate or restrict the production and use of persistent organic pollutants (POPs).

2 RUDRAKSH PLANTATION IN GANGA BASIN

CONTEXT:

- A Memorandum of Understanding (MoU) was signed between National Mission for Clean Ganga, HCL Foundation and INTACH for taking up a project of 'Plantation of Rudraksh Trees in Uttarakhand' as a part of CSR initiative under the 'Namami Gange' Programme.

ABOUT:

- While the project aims at planting 10,000 Rudraksh trees in the catchment area of river Ganga in Uttarakhand in association with local community and other stakeholders, it will also help in generating income for people residing in those areas.
- Namami Gange Mission aims at providing comprehensive and sustainable solutions for a cleaner ecosystem along the stretch of 97 towns and 4,465 villages on the Ganga stem and a public-private partnership will provide the initiative a much-needed impetus.

Rudraksha (Elaeocarpus ganitrus)

- Rudraksha is a Sanskrit compound consisting of the name Rudra ("Shiva") and akṣha ("Tear Drops").
- Elaeocarpus ganitrus, is a large evergreen broad-leaved tree whose seed is traditionally used for prayer beads in Hinduism and Buddhism. The seeds are known as rudraksha, or rudraksh, Sanskrit: rudrākṣa ("Rudra's Tear Drops").
- Rudraksha may be produced by several species of Elaeocarpus; however, E. ganitrus is the principal species used in the making of organic jewellery or mala.

- Elaeocarpus ganitrus grows in the area from the Gangetic plain in the foothills of the Himalayas to South-East Asia, Nepal, Indonesia, New Guinea to Australia, Guam, and Hawaii.
- Rudraksha seeds are covered by an outer husk of blue colour when fully ripe, and for this reason are also known as blueberry beads. The blue colour is not derived from pigment but is structural.
- It is an evergreen tree that grows quickly. The rudraksha tree starts bearing fruit in three to four years. As the tree matures, the roots buttress rising up narrowly near the trunk and radiating out along the surface of the ground.

3 Fourth Scorpene Class Submarine – VELA

CONTEXT:

- Vela, the fourth Scorpene class submarine being constructed by Mazagon Dock Shipbuilders Limited (MDL) for the Indian Navy, was launched on 06 May 2019.

ABOUT:

- Presently Eight Warships and five submarines are under construction at MDL. MDL is one of the India's leading shipyards with a capacity to meet requirements of the Indian Navy.
- The Scorpene class of submarines can undertake multifarious tasks typically undertaken by any modern submarine which include anti-surface as well as anti-submarine warfare.
- The transfer of technology involves appropriate technical support by Naval Group to MDL in the field of construction, integration and tests of the submarines in India which is achieved through transfer of technical data package to MDL through information system as well as on job training to MDL's personnel on critical technologies.
- Leveraging the experience and the transfer-of-technology of the Scorpene project, with enhanced and upgraded infrastructure, MDL, is ready for undertaking construction of the future submarines.

Anti-submarine warfare (ASW)

- It is a branch of underwater warfare that uses surface warships, aircraft, or other submarines to find, track, and deter, damage, or destroy enemy submarines.
- Successful anti-submarine warfare depends on a mix of sensor and weapon technology, training, and experience.
- Sophisticated sonar equipment for first detecting, then classifying, locating, and tracking the target submarine is a key element of ASW.
- To destroy submarines, both torpedoes and naval mines are used, launched from air, surface, and underwater platforms.
- ASW also involves protecting friendly ships.

Anti-submarine warfare technologies

- Sensors
  - Acoustics particularly in active and passive sonar, sonobuoys, and fixed hydrophones aid in the detection of radiated noise. Sonar can be mounted on the hull or in a towed array.
  - Pyrotechnics in the use of markers, flares and explosive devices
  - Searchlights
  - Radar, for surfaced parts
  - Hydrodynamic pressure wave (wake) detection
  - Laser detection and ranging of surfaced vessels; airborne and satellite
  - Electronic countermeasures and acoustic countermeasures such as noise and bubble makers
  - Passive acoustic countermeasures such as concealment and design of sound-absorbing materials to coat reflecting underwater surfaces
  - Magnetic anomaly detection (MAD)
  - Active and (more commonly) passive infra-red detection of surfaced parts.
  - An MH-60R conducts an airborne low frequency sonar (ALFS) operation during testing and evaluation.
  - In modern times forward looking infrared (FLIR) detectors have been used to track the large plumes of heat that fast nuclear-powered submarines leave while rising to the surface. FLIR devices are also used to see periscopes or snorkels at night whenever a submariner might be incautious enough to probe the surface.

Weapons

- B57 nuclear bomb/Naval Mines/Torpedoes (acoustic or wake homing, wire-guided)/Depth charges/Rockets/Mk 101 Lulu/Anti-submarine missiles/Anti-submarine mortar/Anti-submarine net/Nuclear depth bomb/Ramming/WE.177

4 WTO MINISTERIAL MEETING OF DEVELOPING COUNTRIES

CONTEXT:

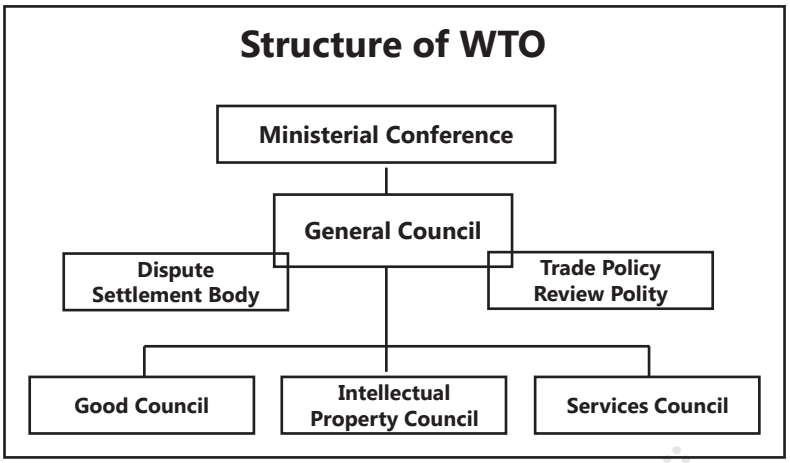
- A WTO Ministerial meeting of developing countries was hosted by India in New Delhi on 13-14 May 2019.

ABOUT:

- Sixteen developing countries, Six Least Developed Countries (LDC) (Argentina, Bangladesh, Barbados, Benin, Brazil, Central African Republic (CAR), Chad, China, Egypt, Guatemala, Guyana, Indonesia, Jamaica, Kazakhstan, Malawi, Malaysia, Nigeria, Oman, Saudi Arabia, South Africa, Turkey, and Uganda) and DG, WTO participated in the meeting.
- The two-day meeting was interactive in order to provide an opportunity to the Ministers to discuss various issues and the way forward.
- On the first day, there was a meeting of senior officers of the participating countries by Union Minister of Commerce & Industry for the heads of delegations. On the 2nd day, the Ministerial Meeting was held.
- The meeting is being held at a time when the multilateral rule-based-trading system is facing serious and grave challenges.
- In the recent past, there have been increasing unilateral measures and counter measures by members, deadlock in key areas of negotiations and the impasse in the Appellate Body, which threaten the very existence of Dispute Settlement Mechanism of the WTO and impacts the position of the WTO as an effective multilateral organisation. The current situation has given rise to demands from various quarters to reform the WTO.
- This meeting at New Delhi was an effort to bring together the developing countries and Least Developed Countries on a platform for sharing common concerns on various issues affecting the WTO and work together to address these issues.
- The two-day meeting also provides an opportunity to the developing countries and LDCs to build consensus on how to move forward on the WTO reforms, while preserving the fundamentals of the multilateral trading system enshrined in the WTO. The deliberations aimed at getting a direction on how to constructively engage on various issues in the WTO, both institutional and negotiating, in the run up to the Twelfth Ministerial Conference of the WTO to be held in Kazakhstan in June 2020.
- The approach of the New Delhi Ministerial Meeting is to re-energise and strengthen multilateralism and put in place a more inclusive decision - making process. Towards this end, it is essential that the collective view of as many Developing Countries as possible is formally articulated in submissions on WTO reforms.

World Trade Organization (WTO)

- It is an intergovernmental organization that is concerned with the regulation of international trade between nations.
- The WTO officially commenced on 1 January 1995 under the Marrakesh Agreement, signed by 124 nations on 15 April 1994, replacing the General Agreement on Tariffs and Trade (GATT), which commenced in 1948. It is the largest international economic organization in the world.
- The WTO deals with regulation of trade in goods, services and intellectual property between participating countries by providing a framework for negotiating trade agreements and a dispute resolution process aimed at enforcing participants' adherence to WTO agreements, which are signed by representatives of member governments and ratified by their parliaments.
- The WTO prohibits discrimination between trading partners, but provides exceptions for environmental protection, national security, and other important goals.
- Trade-related disputes are resolved by independent judges at the WTO through a dispute resolution process.
- A trade facilitation agreement, part of the Bali Package of decisions, was agreed by all members on 7 December 2013, the first comprehensive agreement in the organization's history. On 23 January 2017, the amendment to the WTO Trade Related Aspects of Intellectual Property Rights (TRIPS) Agreement marks the first time since the organization opened in 1995 that WTO accords have been amended, and this change should secure for developing countries a legal pathway to access affordable remedies under WTO rules.



Ministerial Conference

- The highest decision-making body of the WTO, the Ministerial Conference, usually meets every two years.It brings together all members of the WTO, all of which are countries or customs unions. The Ministerial Conference can take decisions on all matters under any of the multilateral trade agreements.

General Council

- Day to day Decision Making body
- Meets regularly at Geneva.
- Implements decision of ministerial conferences
- Has Representative from each member state.
- Has two bodies, with separate chairmen
  - Dispute settlement body
  - Trade policy review body

Director General

- Appointed by ministerial conference
- Has four years term.
- Heads Secretariat at Geneva

5 Liberation Tigers of Tamil Eelam (LTTE)

CONTEXT:

- The Central Government has extended the ban on the Liberation Tigers of Tamil Eelam (LTTE) for another five years under sub-sections (1) and (3) of section 3 of the Unlawful Activities (Prevention) Act, 1967 (37 of 1967) with immediate effect.

ABOUT:

- The notification states that the LTTE's continued violent and disruptive activities are prejudicial to the integrity and sovereignty of India; and it continues to adopt a strong anti-India posture as also continues to pose a grave threat to the security of Indian nationals.
- The latest version of the list contains 41 entries, including, apart from the LTTE, Khalistani terrorist organisations, Pakistan-based terror groups, Islamic State or Daesh, and Indian Mujahideen.

- It also includes some Northeastern militant organisations, Kashmiri separatist organisations, Maoist groups, and the Students Islamic Movement of India (SIMI)

Liberation Tigers of Tamil Eelam (LTTE)

- LTTE or the Tamil Tigers was a Tamil militant and political organization that was based in northeastern Sri Lanka.
- Its aim was to secure an independent state of Tamil Eelam in the north and east in response to the state policies of successive Sri Lankan governments towards Tamils.
- Founded in May 1976 by Velupillai Prabhakaran, it was involved in armed clashes against the Sri Lankan state forces and by the late 1980s was the dominant Tamil militant group in Sri Lanka. The escalation of intermittent conflict into a full-scale nationalist insurgency however did not commence before the countrywide pogroms against Tamils.
- Since 1983, more than 80,000 have been killed in the civil war that lasted 26 years, a large number of whom were Sri Lankan Tamil civilians.
- The LTTE which started out as a guerrilla force, over time, increasingly came to resemble that of a conventional fighting force with a well-developed military wing that included a navy, an airborne unit, an intelligence wing, and a specialized suicide attack unit.
- It was designated as a terrorist organisation by 32 countries, including the European Union, Canada, the United States, and India.
- It was known for using women and children in combat and is recognized for having carried out a number of high-profile assassinations, including Sri Lankan President Ranasinghe Premadasa in 1993 and former Indian Prime Minister Rajiv Gandhi in 1991.
- India first banned the LTTE after the assassination of Rajiv Gandhi; the ban was last extended for five years in 2014.

Unlawful Activities (Prevention) Act, 1967 (UAPA)

- UAPA is India's primary anti-terror law.
- It provides for effective prevention of certain unlawful activities of individuals and associations.

- It helps to deal with terrorist activities, and for matters connected therewith.
- Section 3 of the UAPA deals with the declaration of an association as unlawful.
- It specifies that notifications by the government making such a declaration shall specify the grounds on which it is issued.
- The notification shall also contain such other particulars as the Central government may consider necessary.

6 CYBER EXERCISE

CONTEXT:

- After the successful conduct of workshop on Cyber Warfare & Technology, wherein plethora of lessons emerged, Directorate of Indian Defence University is organised a two day Cyber Exercise on Scenario Building & Response in New Delhi.

ABOUT

- The Exercise was represented by Services, NSCS, NTRO, CERT-in, DRDO, NIC, CSRC, Academia and Industry.
- This exercise incorporated all best practices which were recommended during the cyber workshop held earlier with a view to exercise options at different levels to seek synergized response based on the assessment of situation and own capability.
- The scope of these exercises would encompass the threat landscape and its impact, incident reporting & response framework, procedures for information exchange, attribution, evidence gathering and malicious service takedown, enhancement of capabilities required to protect information, and information systems, enhance cyber awareness, readiness and coordination, integrated international responses & inter-governmental / inter-agency partnerships.
- This exercise is planned to be conducted on an annual basis under the aegis of Indian Defence University, which will also involve Indian agencies and subsequently participation from agencies from Friendly Foreign Countries to jointly build the capability against cyber threats.

Cyber warfare

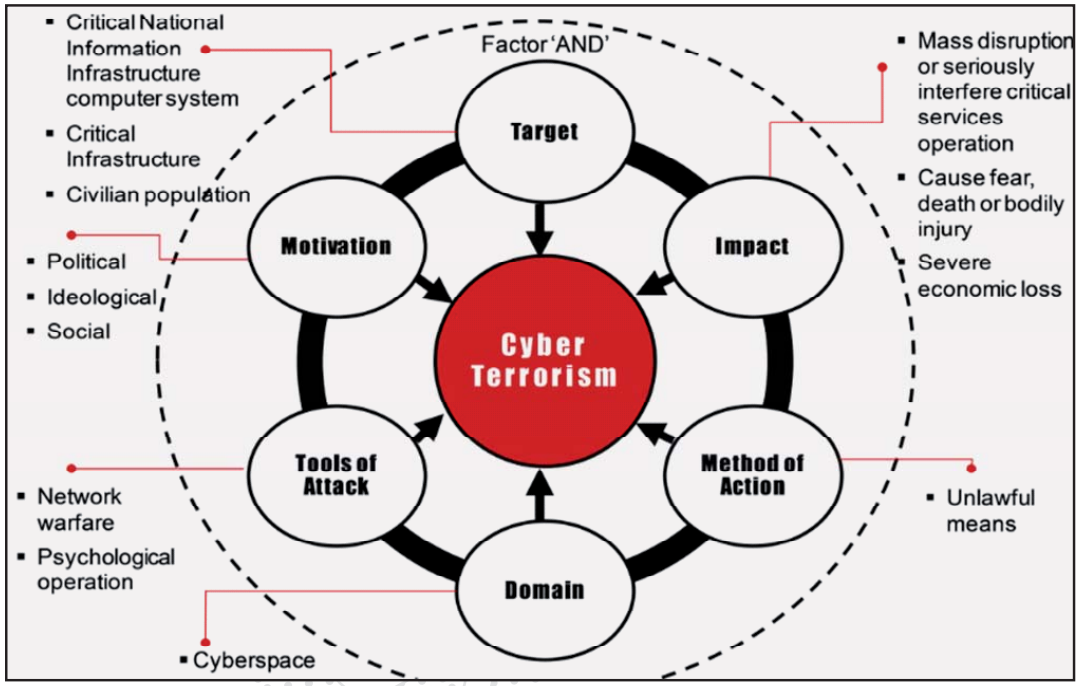
- Cyberwarfare is a broad term describing the use of technological force within cyberspace.
- It is Internet-based conflict involving politically motivated attacks on information and information systems. Cyber warfare attacks can disable official websites and networks, disrupt or disable essential services, steal or alter classified data, and cripple financial systems.
- In 2010, Stuxnet, which was designed to attack industrial programmable logic controllers was directed against the Iranian nuclear programme. Since the discovery of the Stuxnet malware, other "cyber weapons" have made their appearance.

Cyber warfare involves the following attack methods:

- **Sabotage:** Military and financial computer systems are at risk for the disruption of normal operations and equipment, such as communications, fuel, power and transportation infrastructures.
- **Espionage and/or security breaches:** These illegal exploitation methods are used to disable networks, software, computers or the Internet to steal or acquire classified information from rival institutions or individuals for military, political or financial gain.

- Cyber terrorism is the use of the Internet to conduct violent acts that result in, or threaten, loss of life or significant bodily harm, in order to achieve political or ideological gains through threat or intimidation.
- It is also sometimes considered an act of Internet terrorism where terrorist activities, including acts of deliberate, large-scale disruption of computer networks, especially of personal computers attached to the Internet by means of tools such as computer viruses, computer worms, phishing, and other malicious software and hardware methods and programming scripts.

Cyber Terrorism



7 IN – VPN BILAT EX

CONTEXT:

- In the backdrop of the growing maritime engagement between India and Vietnam, the Indian Navy undertook the **second edition** of the bilateral maritime exercise between Indian Navy and Vietnam Peoples' Navy at/ off Cam Ranh Bay, Vietnam from 13 to 16 April, 2019.

ABOUT:

- The maiden edition was conducted from 21 to 26 May, 2018 at Da Nang, Vietnam. The exercise was undertaken as a part of the ongoing Overseas Deployment of Eastern Fleet ships to South East Asian countries.
- IN Ships Kolkata participated in the exercise, comprising a harbour and a sea phase.
- The Indian Navy and the Vietnam Peoples' Navy have traditionally shared good relations. Conduct of the bilateral exercise on an annual basis would give a further fillip to the existing strong bilateral relation between the two countries, which elevated to the level of 'Comprehensive Strategic Partnership' after the visit of the Hon'ble PM to Vietnam.

- The Navy to Navy cooperation involves a Composite Training Programme in the fields of Submarine, Aviation and Dockyard training.
- The two countries have also signed an agreement to exchange White Shipping Information and have a running 'Information Sharing' programme.
- The Indian Navy-Vietnam Peoples' Navy Bilateral Exercise is a significant step in further strengthening mutual confidence and inter-operability as well as sharing best practices between the Indian and the Vietnam Peoples' Navies.

8 Water storage level

CONTEXT:

- The water storage available in 91 major reservoirs of the country for the week ending on April 25, 2019 was 42.52 BCM, which is 26% of total storage capacity of these reservoirs.

ABOUT

- The total storage capacity of these 91 reservoirs is 161.993 BCM which is about 63% of the total storage capacity of 257.812 BCM which is estimated to have been created in the country.
- 37 Reservoirs out of these 91 have hydropower benefit with installed capacity of more than 60 MW.
- States having better storage than last year for corresponding period are Himachal Pradesh, Punjab, Odisha, Gujarat, Uttarakhand, Madhya Pradesh, Karnataka and Tamil Nadu.
- State having equal storage than last year for corresponding period is AP&TG (Two combined projects in both states) Andhra Pradesh and Telangana.
- States having lesser storage than last year for corresponding period are Rajasthan, Jharkhand, West Bengal, Tripura, Maharashtra, Uttar Pradesh, Chhattisgarh, Andhra Pradesh, and Kerala.

REGION WISE STORAGE STATUS:-

- **NORTHERN REGION**
  - The Northern region includes States of Himachal Pradesh, Punjab and Rajasthan. There are six reservoirs under CWC monitoring having total live storage capacity of 18.01 BCM. The total live storage available in these reservoirs is 9.17 BCM which is 51% of total live storage capacity of these reservoirs.
- **EASTERN REGION**
  - The Eastern region includes States of Jharkhand, Odisha, West Bengal and Tripura. There are 15 reservoirs under CWC monitoring having total live storage capacity of 18.83 BCM. The total live storage available in these reservoirs is 6.56 BCM which is 35% of total live storage capacity of these reservoirs.
- **WESTERN REGION**
  - The Western region includes States of Gujarat and Maharashtra. There are 27 reservoirs under CWC monitoring having total live storage capacity of 31.26 BCM. The total live storage available in these reservoirs is 5.67 BCM which is 18% of total live storage capacity of these reservoirs.
- **CENTRAL REGION**
  - The Central region includes States of Uttar Pradesh, Uttarakhand, Madhya Pradesh and Chhattisgarh. There are 12 reservoirs under CWC monitoring having total live storage capacity of 42.30 BCM. The total live storage available in these reservoirs is 12.51 BCM which is 30% of total live storage capacity of these reservoirs.

- **SOUTHERN REGION**
  - The Southern region includes States of Andhra Pradesh, Telangana, AP&TG (Two combined projects in both states), Karnataka, Kerala and Tamil Nadu. There are 31 reservoirs under CWC monitoring having total live storage capacity of 51.59 BCM. The total live storage available in these reservoirs is 8.63 BCM which is 17% of total live storage capacity of these reservoirs.

9 Eight Core Industries

CONTEXT:

- Ministry of Commerce & Industry released Index of Eight Core Industries (Base: 2011-12=100) March, 2019

ABOUT

- It is compiled and published monthly by the central statistical organisation (CSO), Ministry of Statistics and Programme Implementation six weeks after the reference month ends.
- The eight core industries comprise 40.27 per cent of the weight of items included in the Index of Industrial Production (IIP).
- The combined Index of Eight Core Industries stood at 145.0 in March, 2019, which was 4.7 per cent higher as compared to the index of March, 2018. Its cumulative growth during April to March, 2018-19 was 4.3 percent.
- **Coal:** Coal production increased by 9.1 per cent in March, 2019 over March, 2018.
- **Crude Oil:** Crude Oil production declined by 6.2 per cent in March, 2019 over March, 2018.
- **Natural Gas:** The Natural Gas production increased by 1.4 per cent in March, 2019 over March, 2018.
- **Refinery Products:** Petroleum Refinery production increased by 4.3 percent in March, 2019 over March, 2018.
- **Fertilizers:** Fertilizers production increased by 4.3 percent in March, 2019 over March, 2018. Its cumulative index increased by 0.3 per cent during April to March, 2018-19 over the corresponding period of previous year.
- **Steel:** Steel production increased by 6.7 per cent in March, 2019 over March, 2018.
- **Cement:** Cement production increased by 15.7 per cent in March, 2019 over March, 2018.
- **Electricity:** Electricity generation increased by 1.4 percent in March, 2019 over March, 2018.

Performance of Eight Core Industries

Growth Rates (in per cent)								
Sector	**Weight**	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**	**Apr-Mar 2017-18**	**Apr-Mar 2018-19**
Coal	10.3335	3.2	1.0	8.0	4.8	3.2	2.6	7.3
Crude Oil	8.9833	-0.6	-0.2	-0.9	-1.4	-2.5	-0.9	-4.1
Natural Gas	6.8768	-14.4	-12.9	-5.3	-4.7	-1.0	2.9	0.8
Refinery Products	28.0376	7.2	1.4	0.2	4.9	4.9	4.6	3.1
Fertilizers	2.6276	-3.3	1.5	1.3	7.0	0.2	0.03	0.3

Steel	17.9166	7.9	7.3	5.1	-1.3	10.7	5.6	4.7
Cement	5.3720	7.5	3.7	5.9	4.6	-1.2	6.3	13.3
Electricity	19.8530	4.0	6.1	14.8	5.7	5.8	5.3	5.1
Overall Index	**100.0000**	**3.8**	**2.6**	**4.9**	**3.0**	**4.8**	**4.3**	4.3

Index of Industrial Production (IIP)

- It is an index for India which details out the growth of various sectors in an economy such as mineral mining, electricity and manufacturing.
- The all India IIP is a composite indicator that measures the short-term changes in the volume of production of a basket of industrial products during a given period with respect to that in a chosen base period.
- It is compiled and published monthly by the central statistical organisation (CSO), Ministry of Statistics and Programme Implementation six weeks after the reference month ends.
- The level of the Index of Industrial Production (IIP) is an abstract number, the magnitude of which represents the status of production in the industrial sector for a given period of time as compared to a reference period of time.
- The base year was at one time fixed at 1993–94 so that year was assigned an index level of 100. The current base year is 2011-2012.
- The Eight Core Industries comprise nearly 40.27% of the weight of items included in the Index of Industrial Production (IIP). These are electricity, steel, refinery products, crude oil, coal, cement, natural gas and fertilizers.

10 INS RANJIT

CONTEXT:

- INS Ranjit, a Rajput class destroyer was decommissioned at a solemn yet grand ceremony at Naval Dockyard, Visakhapatnam culminating a glorious era on 06 May, 2019.

ABOUT:

- The ship commissioned on 15 September 1983 by Captain Vishnu Bhagwat in erstwhile USSR has rendered yeoman service to the nation for 36 years.
- The ship since her commissioning has sailed for 2190 days covering a distance of over 7,43,000 nautical miles which is equivalent to navigating around the world 35 times and 3.5 times the distance from earth to moon.
- The ship has been at the forefront of major naval operations and has the distinction of serving on both Eastern and Western seaboards.

11 WORLD CUSTOMS ORGANISATION

CONTEXT:

- Central Board of Indirect Taxes and Customs (CBIC) organized meeting of Regional Heads of Customs Administration of Asia Pacific Region of the World Customs Organisation (WCO) in Kochi.

ABOUT:

- India hosted this meeting in its capacity as Vice Chair of the Asia Pacific region that it assumed on 1st July, 2018 for a two-year period.
- The meeting took stock of the progress being made in carrying forward the programmes and initiatives of WCO to promote, facilitate and secure the cross-border trade in the region and the capacity building and technical assistance required to achieve this goal.
- Reflecting the importance of the meeting, Customs delegations from more than twenty countries of the Asia Pacific region participated along with senior officials of the WCO and its regional bodies, i.e. Regional Office for Capacity Building (ROCB) and Regional Intelligence Liaoning Office (RILO).

World Customs Organization (WCO)

- It is an intergovernmental organization headquartered in **Brussels, Belgium**.
- It is noted for its work in areas covering the development of international conventions, instruments, and tools on topics such as commodity classification, valuation, rules of origin, collection of customs revenue, supply chain security, international trade facilitation, customs enforcement activities, combating counterfeiting in support of Intellectual Property Rights (IPR), drugs enforcement, illegal weapons trading, integrity promotion, and delivering sustainable capacity building to assist with customs reforms and modernization.
- It maintains **the international Harmonized System (HS)** goods nomenclature, and administers the technical aspects of the World Trade Organization (WTO) Agreements on Customs Valuation and Rules of Origin.
- The WCO is internationally acknowledged as the global centre of customs expertise and plays a leading role in the discussion, development, promotion and implementation of modern customs systems and procedures.
- It is responsive to the needs of its members and its strategic environment, and its instruments and best-practice approaches are recognized as the basis for sound customs administration throughout the world.
- The WCO's primary objective is to enhance the efficiency and effectiveness of member customs administrations, thereby assisting them to contribute successfully to national development goals, particularly revenue collection, national security, trade facilitation, community protection, and collection of trade statistics.

12 APACHE HELICOPTER

CONTEXT:

- First AH-64E (I) - Apache Guardian helicopter was formally handed over to the Indian Air Force at Boeing production facility in Mesa, Arizona, USA on 10 May 19.

ABOUT:

- IAF had signed a contract with US Government and M/s Boeing Ltd in September, 2015 for 22 Apache helicopters.
- The addition of AH-64 E (I) helicopter is a significant step towards modernisation of Indian Air Force's helicopter fleet.
- The helicopter has been customized to suit IAF's future requirements and would have significant capability in mountainous terrain.
- The helicopter has the capability to carry out precision attacks at standoff ranges and operate in hostile airspace with threats from ground.
- The ability of these helicopters, to transmit and receive the battlefield picture, to and from the weapon systems through data networking makes it a lethal acquisition.

- These attack helicopters will provide significant edge in any future joint operations in support of land forces.

List of active Indian military aircraft

AIRCRAFT	ORIGIN	INDIAN ARM FORCES	ROLE
Sukhoi Su-30MKI	Russia India	Indian Airforce	Air Superiority Fighter
Dassault Mirage 2000	France	Indian Airforce	Multirole Fighter Aircraft
Mikoyan MiG-29	Soviet Union	Indian Airforce	Air Superiority Fighter
SEPECAT Jaguar	France United Kingdom	Indian Airforce	Ground-Attack Aircraft
Gulfstream III	United States	Indian Airforce	Reconnaissance
BAE Sea Harrier	United Kingdom	Indian Naval Air Arm	Fighter aircraft
Boeing P-8 Poseidon	United States	Indian Naval Air Arm	Maritime Patrol
Dornier Do 228	Germany India	Indian Naval Air Arm	Utility Aircraft
Kamov Ka-31 Helix-B	Russia	Indian Naval Air Arm	Airborne early warning
Westland Sea King	United Kingdom	Indian Naval Air Arm	Anti-submarine warfare
HAL Chetak	France India	Army aviation corps	Search & Rescue, Utility Transport

UAVs of India

Aircraft	Origin	Role
IAI Harpy	Israel	Unmanned combat air vehicle
IAI Harop	Israel	Unmanned combat air vehicle
IAI Heron	Israel	Unmanned aerial vehicle
DRDO Lakshya	India	Target drone
DRDO Nishant	India	Unmanned aerial vehicle
IAI Searcher	Israel	Unmanned aerial vehicle

13 FLIGHT TEST OF ABHYAS

CONTEXT:

- Defence Research and Development Organisation (DRDO) conducted successful flight test of ABHYAS - High-speed Expendable Aerial Target (HEAT) from Interim Test Range, Chandipur in Odisha.

ABOUT:

- The flight test was tracked by various RADARS & Electro Optic Systems and proved its performance in fully autonomous way point navigation mode.
- For its guidance and navigation it uses indigenously developed Micro-Electro-Mechanical Systems (MEMS) based navigation system.
- The configuration of ABHYAS is designed on an in-line small gas turbine engine and uses indigenously developed MEMS based navigation system for its navigation and guidance.
- The performance of the system was as per simulations carried out and demonstrated the capability of ABHYAS to meet the mission requirement for a cost effective HEAT.
- It has a Luneburg lens (a spherically symmetric gradient-index lens) in the nose cone which improves the radar cross-section of target for weapons practice.
- It has an Acoustic Miss Distance Indicator (AMDI, a multi-role scoring system for gunnery training and weapons assessment) to indicate the distance it missed.

14 GLOBAL FACILITY FOR DISASTER REDUCTION AND RECOVERY (GFDRR)

CONTEXT:

- India is unanimously chosen as co-chair of the Consultative Group (CG) of Global Facility for Disaster Reduction and Recovery (GFDRR) for the fiscal year 2020.

ABOUT:

- The decision was taken during the CG meeting of GFDRR held in Geneva, Switzerland, on the margins of the 6th Session of the Global Platform for Disaster Risk Reduction (GPDRR) 2019.
- The CG Meeting was co-chaired by Africa Caribbean and Pacific (ACP) Group of States, the European Union (EU) and World Bank. Additionally, GFDRR in cooperation with the UNDRR and the EU also organized the 4th edition of World Reconstruction Conference (WRC) on May 13-14, 2019.
- GFDRR is a global partnership that helps developing countries better understand and reduce their vulnerability to natural hazards and climate change. GFDRR is a grant-funding mechanism, managed by the World Bank that supports disaster risk management projects worldwide.

- It is presently working on the ground with over 400 local, national, regional, and international partners and provides knowledge, funding, and technical assistance.
- **India became member of CG of GFDRR in 2015** and expressed its interest to co-chair in last meeting of CG held in October 2018. India's candidature was backed by its consistent progress in disaster risk reduction (DRR) in the country and its initiative to form a coalition on disaster resilient infrastructure. This will give the country an opportunity to work with the member countries and organizations of GFDRR with a focused contribution towards advancing the disaster risk reduction agenda during the course of the year.
- This is the first time that the country has been afforded the opportunity of co-chairing the CG meeting of GFDRR. India would like to pursue a focused agenda and develop synergies with ongoing work streams of GFDRR. Disaster Resilient Infrastructure (DRI) will be a central theme of engagement with the GFDRR partners and stakeholders.

15 AUSINDEX-19

CONTEXT:

- The Australian and Indian Navy have concluded a two-week long bilateral maritime exercise code-named AUSINDEX on 14 April 2019.

ABOUT

- The current edition of the exercise had the participation of the highest number of units thus far with four frontline ships with integral helicopters, one submarine and a variety of aircraft including P8I and P8A long-range Maritime Reconnaissance Anti-Submarine Warfare aircraft took part from both navies.
- For the first time, 55 American and 20 New Zealand military personnel embarked onboard the RAN ships and witnessed the exercises during AUSINDEX-19.
- The third edition of the exercise which commenced on 02 Apr 19 included a series of advanced warfare drills in all three dimensions comprising anti-submarine warfare exercises, air defense exercises, anti-surface warfare exercises including live-fire drills, replenishment at sea, and cross deck flying.
- The bilateral exercise was aimed "to strengthen and enhance mutual cooperation and interoperability between the IN and RAN, providing opportunities for interaction and exchange of professional views between the personnel of the two navies".

16 REDEFINED UNITS OF MEASUREMENT OF KILOGRAM, KELVIN, MOLE AND AMPERE

CONTEXT:

- After decades of ground-breaking laboratory works, the world's scientific and technical community, in a landmark and historic decision taken in the recent open session of the **General Conference on Weights and Measures (CGPM)** at BIPM on 16 November 2018, has unanimously adopted the resolution to redefine four of the seven base units, the kilogram (SI unit of weight), Kelvin (SI unit of temperature), mole (SI unit of amount of substance), and ampere (SI unit of current).

ABOUT:

- The new SI is being implemented worldwide from 20th May 2019 i.e. the World Metrology Day.
- The World Metrology Day (WMD) is celebrated annually on this very day as the Metre Convention

was signed by representatives of seventeen nations on May 20, 1875. The Convention set the framework for global collaboration in the science of measurement and in its industrial, commercial and societal applications.

- The definition of the kilogram for more than 130 years, the International Prototype of the Kilogram (IPK), a cylinder of a platinum alloy stored at the BIPM in France, will now be retired. It will be replaced by the **Planck constant** -- the fundamental constant of **quantum physics**.
- This decision has now enabled scientists and researchers to base the SI units entirely on fundamental properties of nature, which will ensure their ongoing refinement and improvement for years to come.
- The fundamental constants are invariants of time and space and successfully replaced the artifact based units, and aptly opened up the new era for quantum world by linking all seven base units to fundamental constants/quantum standards.
- India also adopted a global resolution to redefine four of the seven base units – kilogram, kelvin, mole and ampere – that was accepted by representatives from 60 countries at the General Conference on Weights and Measures in Versailles, near Paris.

How will the kilogram be measured?

- For more than a century, the kilogram was defined by a metal cylinder, made of platinum-iridium alloy, kept in a vault in Paris called the International Prototype of the Kilogram.
- However, there was always a possibility of the cylinder losing mass or gaining some because of extraneous factors, thereby altering the definition. Scientists indeed found by comparing the cylinder with its copies distributed across the world that despite their efforts to protect the cylinders, their mass changed.
- Now, a kilogram will be defined using the Planck constant, which relates a photon's energy to its frequency. The Planck constant describes the behaviour of particles and waves on the atomic scale. It depends on three units: metre, kilogram and second. As second and metre are measured and defined using the speed of light, they can be used with the fixed Planck constant to define a kilogram. Although the value of the kilogram will not change, the redefinition will ensure its reliability, and enable far more accurate mass measurements.
- The new definitions impact four of the seven base units of the SI: the kilogram, ampere, kelvin and mole; and all units derived from them, such as the volt, ohm and joule.
- The kilogram -- will be defined by the Planck constant (h)
- The ampere -- will be defined by the elementary electrical charge (e)
- The kelvin -- will be defined by the Boltzmann constant (k)
- The mole -- will be defined by the Avogadro constant (NA)
- Standard Particle Model of Quantum Mechanics is a mathematical model which explains the particle-wave nature of sub-atomic particles. This model proposed two major groups of elementary particles of matter, i.e. Quarks and Leptons.
- The model also proposed elementary force carriers known as Gauge Bosons (responsible for the forces in nature) and one Higgs Boson. Standard Particle Model explains the matter-energy conversions, with the help of Quarks, Leptons, Gauge Bosons and Higgs Boson.

General Conference on Weights and Measures (CGPM)

- It is the supreme authority of the International Bureau of Weights and Measures. The inter-governmental organization established in 1875 under the terms of the Metre Convention through which Member States act together on matters related to measurement science and measurement standards.
- The CGPM is made up of delegates of the governments of the Member States and observers from the Associates of the CGPM. Under its authority, the International Committee for Weights and Measures executes an exclusive direction and supervision of the BIPM.
- The General Conference receives the report of the CIPM on work accomplished; it discusses and examines the arrangements required to ensure the propagation and improvement of the International System of Units (SI); it endorses the results of new fundamental metrological determinations and various scientific resolutions of international scope; and it decides all major issues concerning the organization and development of the BIPM, including the dotation of the BIPM.

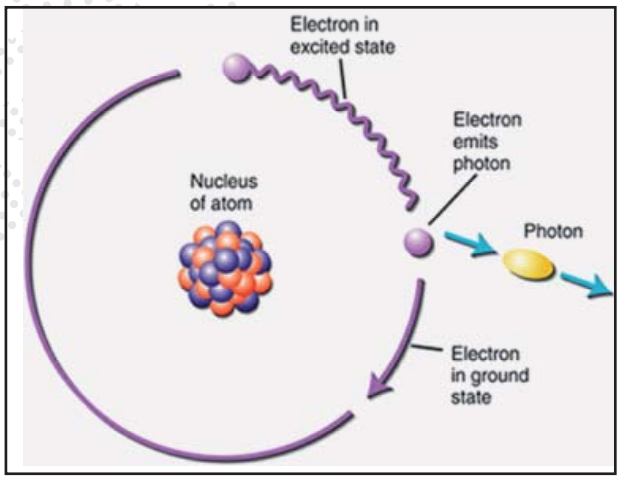
Quantum mechanics (QM):

- Quantum mechanics also known as quantum physics, quantum theory, the wave mechanical model, or matrix mechanics, , is a fundamental theory in physics which describes nature at the smallest scales of energy levels of atoms and subatomic particles.
- Quantum mechanics is the branch of physics that deals with the behavior of matter and light on a subatomic and atomic level.
- It attempts to explain the properties of atoms and molecules and their fundamental particles like protons, neutrons, electrons, gluons, and quarks. The properties of particles include their interactions with each other and with electromagnetic radiation.

Planck Constant

- The Planck constant is a physical constant that is the quantum of electromagnetic action, which relates the energy carried by a photon to its frequency. A **photon's** energy is equal to its frequency multiplied by the Planck constant. The Planck constant is of fundamental importance in **quantum mechanics**, and in metrology it is the basis for the definition of the kilogram.

Photon:



- The photon is a type of elementary particle, the quantum of the electromagnetic field including electromagnetic radiation such as light, and the force carrier for the electromagnetic force (even when static via virtual particles). Invariant mass of the photon is zero; it always moves at the speed of light within a vacuum.

- Like all elementary particles, photons are currently best explained by quantum mechanics and exhibit wave–particle duality, exhibiting properties of both waves and particles. For example, a single photon may be refracted by a lens and exhibit wave interference with itself, and it can behave as a particle with definite and finite measurable position or momentum, though not both at the same time as per Heisenberg's uncertainty principle.

17 HIGH LEVEL COMMITTEE ON OIL AND GAS

CONTEXT:

- The High-Level Committee (HLC) constituted by the Government of India to examine the issues relating to preparation of action plan to create synergy among R&D Centres of Oil & Gas PSUs; tax issues and ways to benefit from GST by the Oil & Gas PSUs submitted its report to the Minister of Petroleum & Natural Gas and Skill Development & Entrepreneurship.

ABOUT:

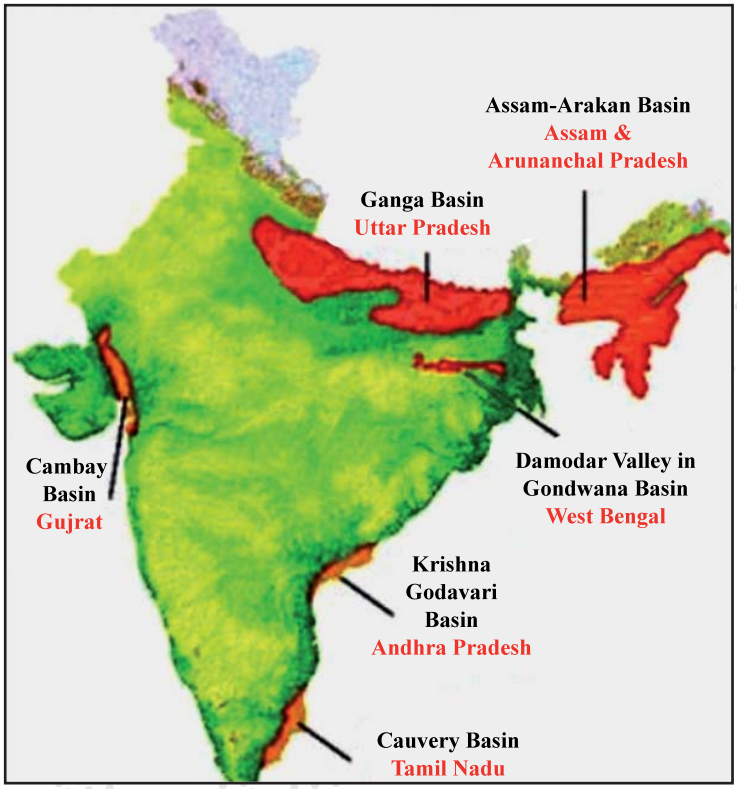
- The HLC, consisting of Dr. Anil Kakodkar, eminent Scientist and Shri Sidharth Pradhan, an expert on financial and tax issues, also looked into merger, acquisition and consolidation of Oil & Gas PSUs and the Joint Ventures; explored the need and possibility of formation of new entity dealing with oil services and supply of qualified manpower to Oil & Gas sector around the world.
- Energy security is a key strategic priority for India.During 2018, India consumed 204.92 MMT petroleum products and 58.64 BCM natural gas whereas the domestic production of crude oil and natural gas has almost stagnated.
- The import dependency of crude oil and LNG during the year was 82.59% and 45.89% respectively which is likely to increase in days to come.
- During 2018, petroleum import (₹7028.37 billion) was 23.42% of total gross import (₹30010.2 billion) of the nation.
- India's projected oil demand is going to grow at CAGR 4% during 2016-2030 against the world average of 1% though the projected oil demand will be much lower as compared to the US and China. India is thus at very precarious situation and to secure its energy needs in sustainable manner, out-of-box solutions are needed. R&D is going to play an important role in the process.
- The HLC, in the process visited, different R&D and training institutes of different oil & gas PSUs. It also engaged with CMDs/ senior executives of the Oil sector to understand the business, challenges and opportunities in the sector before writing its recommendations.
- The Committee has recommended short term, medium term and long term strategies in the report, clearly bringing out the strategy to reduce the import dependency of the nation.

Dependency of India on import of oil and gas

- India imports over 80% of its crude oil and the largest sources are Iraq, Saudi Arabia and sanctions-hit Iran.
- Overall, India's import dependency in its energy mix has risen sharply from 21% in 2000 to 36% in 2015.
- It could be as much as 50% in 2040 even if energy production domestically grows faster than it has in the past.
- As India modernises its economy, it will move away from older, less dense forms of energy such as biomass to more dense ones.
- But India largely lacks proven resources of oil, gas and metallurgical coal on the scale it requires.

- However, the consequence of this continued dependence for the external balance and for overall macro-economic stability is unwelcome. E.g. a spike in the price of oil drives up domestic inflation, stresses the fiscal deficit.
- It can also drive India close to a crisis in terms of its balance of payments, as it did in 1991 and nearly did in 2013.

Prospective basins for phase 1 shale oil and gas exploration



18 RISAT-2B

CONTEXT:

- India's Polar Satellite Launch Vehicle (PSLV-C46) successfully launched the RISAT-2B satellite from Satish Dhawan Space Centre (SDSC) SHAR, Sriharikota in Andhra Pradesh.

ABOUT

- This was the 72nd launch vehicle mission from SDSC SHAR, Sriharikota and 36th launch from the First Launch pad.
- PSLV-C46 lifted-off from the First Launch Pad and injected RISAT-2B into a orbit of 556 km. After separation, solar arrays of RISAT-2B were deployed automatically and ISRO Telemetry Tracking and Command Network (ISTRAC) at Bengaluru assumed control of the satellite.
- RISAT-2B is a radar imaging earth observation satellite weighing about 615 kg. The satellite is intended to provide services in the field of Agriculture, Forestry and Disaster Management.
- It is an improvement over the remote sensing satellites in natural resources observation and management. The ISRO, through the National Remote Sensing Centre (NRSC), Hyderabad, has been

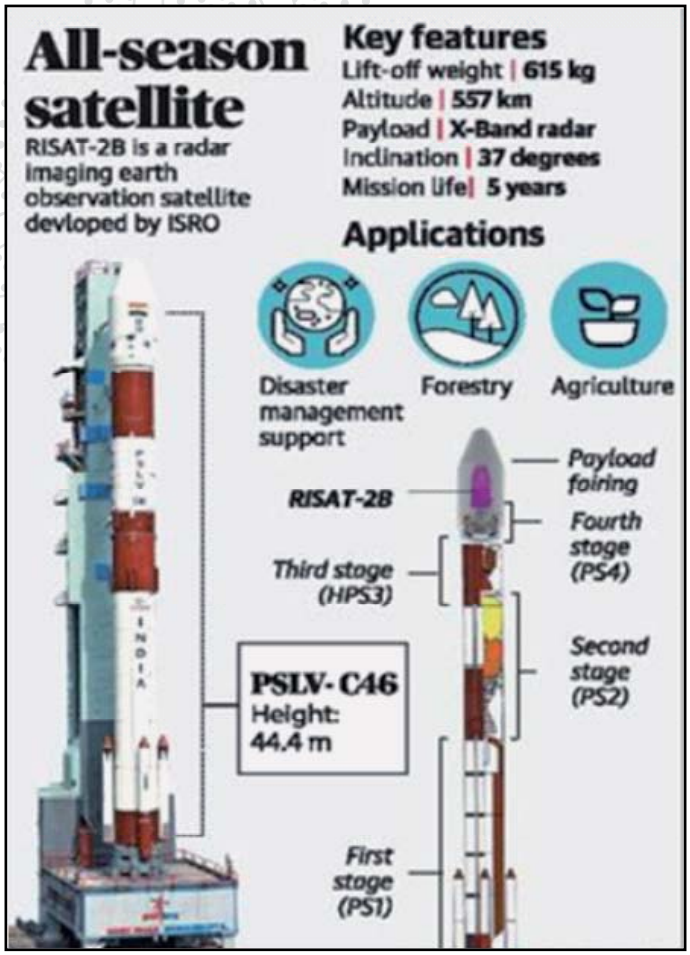
harnessing the imagery from remote sensing satellites and providing important data for planning and utilisation of natural resources over the past three decades.

Polar Satellite Launch Vehicle (PSLV)

- PSLV is an expendable medium-lift launch vehicle designed and operated by the Indian Space Research Organisation (ISRO). It was developed to allow India to launch its Indian Remote Sensing (IRS) satellites into sun-synchronous orbits, a service that was, until the advent of the PSLV in 1993, commercially available only from Russia. PSLV can also launch small size satellites into Geostationary Transfer Orbit (GTO).
- Some notable payloads launched by PSLV include India's first lunar probe Chandrayaan-1, India's first interplanetary mission, Mars Orbiter Mission (Mangalyaan) and India's first space observatory, Astrosat.
- PSLV has gained credence as a small satellite launcher due its numerous multi-satellite deployment campaigns with auxiliary payloads usually ride sharing along an Indian primary payload. Most notable among these was the launch of PSLV C37 on 15 February 2017 successfully deploying 104 satellites in sun-synchronous orbit, tripling the previous record held by Russia for most number of satellites sent to space on a single launch.
- 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. It also uses strap-on motors to augment the thrust provided by the first stage, and depending on the number of these strap-on boosters, the PSLV is classified into its various versions like core-alone version (PSLV-CA), PSLV-G or PSLV-XL variants.

RISAT (Radar Imaging Satellite)

- RISAT is a series of Indian radar imaging reconnaissance satellites built by ISRO. They provide all-weather surveillance using synthetic aperture radars (SAR).
- The RISAT series are the first all-weather earth observation satellites from ISRO. Previous Indian observation satellites relied primarily on optical and spectral sensors which were hampered by cloud cover.
- After the November 26, 2008 Mumbai attacks, the launch plan was modified to launch RISAT-2 before RISAT-1, since the indigenous C-band SAR to be used for RISAT-1 was not ready. RISAT-2 used an Israel Aerospace Industries (IAI) X-band SAR sensor similar to the one employed on TecSAR.



19 BRAHMOS MISSILE

CONTEXT:

- IAF successfully fired the BrahMos air version missile from its frontline Su-30 MKI fighter aircraft.

ABOUT:

- The air launched BrahMos missile is a **2.5 ton supersonic** air to surface cruise missile with ranges of close to **300 km**, designed and developed by BAPL.
- The IAF became the first Air Force in the world to have successfully fired an air launched **2.8 Mach** surface attack missile of this category on a sea target.
- The integration of the weapon on the aircraft was a very complex process involving mechanical, electrical and software modifications on aircraft.
- The BrahMos missile provides Indian Air Force a much desired capability to strike from large stand-off ranges on any target at sea or on land with pinpoint accuracy by day or night and in all weather conditions.
- The capability of the missile coupled with the superlative performance of the **Su-30MKI aircraft** gives the IAF the desired strategic reach.

BrahMos

- The BrahMos - 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 a joint venture between the Russian Federation's NPO Mashinostroyeniya and India's Defence Research and Development Organisation (DRDO) who together have formed BrahMos Aerospace.
- 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.
- It is the **world's fastest anti-ship cruise missile in operation**.The missile travels at speeds of **Mach 2.8 to 3.0**, which is being upgraded to **Mach 5.0**.
- The land-launched and ship-launched versions are already in service, with the air and submarine-launched versions currently in the testing phase. An air-launched variant of BrahMos appeared in 2012.
- A hypersonic version of the missile, BrahMos-II, is also presently under development with a speed of Mach 7-8 to boost aerial fast strike capability. It is expected to be ready for testing by 2020.
- India wanted the BrahMos to be based on a mid-range cruise missile like the P-700 Granit. Its propulsion is based on the Russian missile, and missile guidance has been developed by BrahMos Aerospace. The missile is expected to reach a total order US$13 billion.
- In 2016, as India became a member of the Missile Technology Control Regime (MTCR), India and Russia are now planning to jointly develop a new generation of Brahmos missiles with 600 km-plus range and an ability to hit protected targets with pinpoint accuracy.

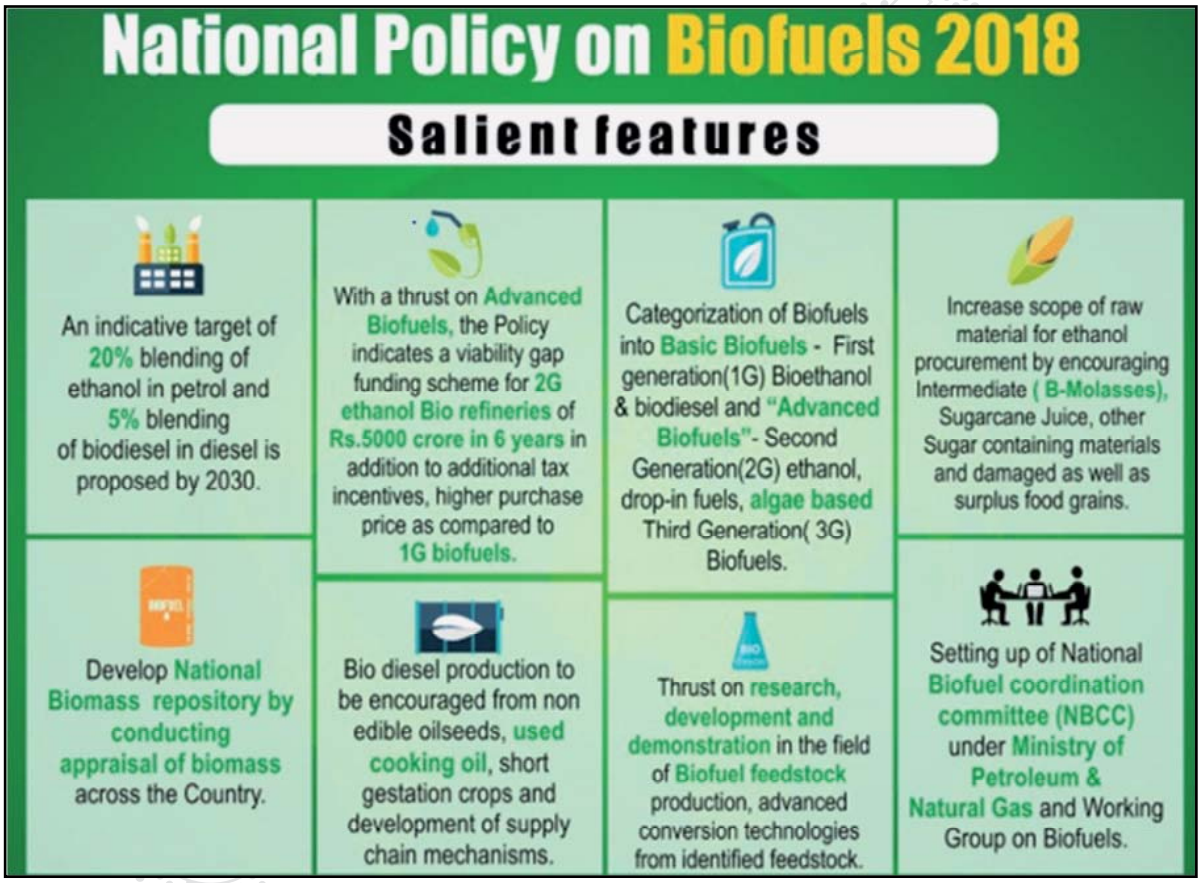
20 INDIGENOUS BIO-JET FUEL

CONTEXT:

- IAF's formidable workhorse, the Russian made **AN-32 aircraft** was formally fleet certified to fly on blended aviation fuel containing up to 10% of **indigenous bio-jet fuel.**

ABOUT:

- The IAF has undertaken a series of evaluation tests and trials with this green aviation fuel for the last one year. The scope of these checks was in consonance with the international aviation standards.
- This approval is an acknowledgement of the meticulous testing using the indigenous bio-jet fuel by the IAF.
- The indigenous bio-jet fuel was first produced by the **CSIR-IIP** lab at Dehradun in 2013, but could not be tested or certified for commercial use on aircraft due to lack of test facilities in the civil aviation sector.
- IAF's flight test crew and engineers have been evaluating the performance of this fuel against international standards.
- This is a huge step in promoting the 'Make in India' mission as this bio-fuel would be produced from **Tree Borne Oils (TBOs)** sourced from tribal areas and farmers, augmenting their income substantially.



BIO JET FUEL:

- Bio jet fuel is greenhouse gas (GHG) neutral, carbon neutral, reduces air pollution. Capping its blending with aviation turbine fuel will help to bring down import bill on crude oil. Moreover, commercialization of aviation biofuel promises large-scale employment avenues both in formal and informal sector,
- The use of bio jet fuel will help in reducing greenhouse gas (GHG) emissions by about 15% and sulfur oxides (SOx) emissions by over 99%. It is expected to provide indigenous jet fuel supply security. Its usage also offers superior engine performance and reduced maintenance cost for the airline operators.

Rationale for aviation biofuels

- Aviation's share of the greenhouse gas emissions is poised to grow, as air travel increases and ground vehicles use more alternative fuels like ethanol and biodiesel.
- Currently aviation represents 2% of global emissions, but is expected to grow to 3% by 2050.
- In addition to building more fuel efficient aircraft and operating them more efficiently, changing the fuel source is one of the few options the aviation industry has for reducing its carbon footprint.

Concerns and challenges

- Biodiesel that is stored for long periods of time is more likely to oxidize, especially at low temperatures, causing it to gel.
- Some additives improve the cold weather tolerance of biodiesel, but only by a few degrees.
- Nitrile-based rubber materials expand in the presence of aromatic compounds found in conventional petroleum fuel.
- Pure biofuels that aren't mixed with petroleum and don't contain paraffin-based additives may cause rubber seals and hoses to shrink.
- Manufacturers are starting to use a synthetic rubber substitute called Vitonfor seals and hoses. Viton isn't adversely affected by biofuels. The US Air Force has found harmful bacteria and fungi in their biofueled aircraft, and use pasteurization to disinfect them.

21 SECOND SCO MASS MEDIA FORUM AT BISHKEK

CONTEXT:

- The Second Shanghai Cooperation Organization (SCO) Mass Media Forum was held at Bishkek, Kyrgyzstan from 23-26 May, 2019.

ABOUT:

- The Forum aims to strengthen the exchange and cooperation in the field of mass media amongst SCO countries.
- It offers a unique platform for active work through mass media to create an objective vision of the organization and strengthen its positive image in the global information space.
- The representative of state bodies supervising mass media of the SCO countries (Member States, Observer Countries, Dialogue Partners); representatives of leading mass media of the SCO countries and representatives of the SCO Secretariat participating in the Forum.

BACKGROUND

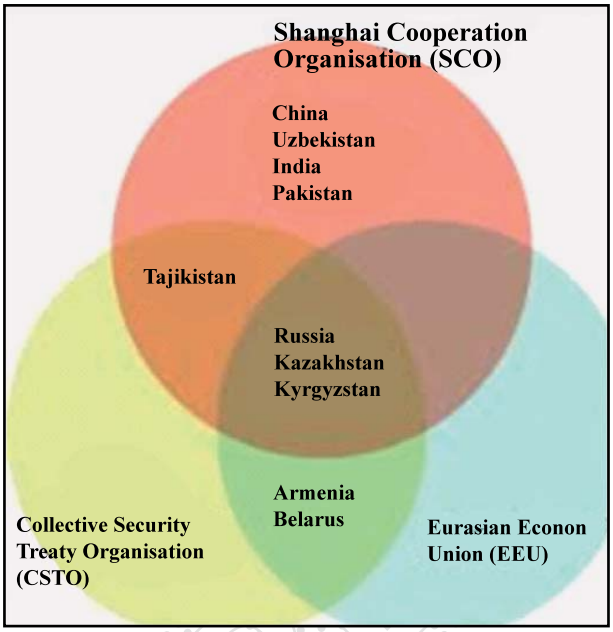
- The first SCO Media Summit was held in Beijing on 1 June 2018. This event was held under the motto "Development of the "Shanghai Spirit" and opening of a new era in the mass media cooperation", where over 110 media outlets from 16 countries participated, including the SCO Member States, Observer States and Dialogue Partners.

The Shanghai Cooperation Organization (SCO):

- The Shanghai Cooperation Organization (SCO), or Shanghai Pact, is a Eurasian political, economic, and security alliance, the creation of which was announced on 15 June 2001 in Shanghai, China by the leaders of China, Kazakhstan, Kyrgyzstan, Russia, Tajikistan, and Uzbekistan; the Shanghai Cooperation Organisation Charter, formally establishing the organisation, was signed in June 2002 and entered into force on 19 September 2003.
- The original five nations, with the exclusion of Uzbekistan, were previously members of the

Shanghai Five group, founded on 26 April 1996. Since then, the organisation has expanded its membership to eight countries when India and Pakistan joined SCO as full members on 9 June 2017 at a summit in Astana, Kazakhstan.

- The Heads of State Council (HSC) is the supreme decision-making body in the SCO, it meets once a year and adopts decisions and guidelines on all important matters of the organisation.
- Military exercises are also regularly conducted among members to promote cooperation and coordination against terrorism and other external threats, and to maintain regional peace and stability.
- The SCO is widely regarded as the "alliance of the East", due to its growing centrality in Asia-Pacific, and has been the primary security pillar of the region. It is the largest regional organisation in the world in terms of geographical coverage and population, covering three-fifths of the Eurasian continent and nearly half of the human population.



22 Akash – Mk -1S

CONTEXT:

- Defence Research and Development Organisation (DRDO) has successfully test fired AKASH-MK-1S missile from ITR, Chandipur, Odhisa on 25 and 27 May 2019.

ABOUT

- Akash Mk1S is an upgrade of existing AKASH missile with indigenous Seeker.
- It is a surface to air missile which can neutralize advanced aerial targets.
- The Akash weapon system has combination of both command guidance and active terminal seeker guidance.
- Seeker and guidance performance have been consistently established in both the missions. All the mission objectives have been met.

Akash Missile System

- Indigenously developed by DRDO under the Integrated Guided-Missile Development Programme (IGMDP).
- It is mid-range surface-to-air anti-aircraft missile. The missile system can target aircraft up to 30 km away, at altitudes up to 18,000 m.
- Supersonic speeds ranging from Mach 2.8 to 3.5.
- Nuclear capable.
- It is multi target, multi directional, and all weather air-defence system consisting of surveillance and tracking radars. It has the capability to "neutralise aerial targets like fighter jets, cruise missiles and air-to-surface missiles" as well as ballistic missiles. It is in operational service with the Indian Army and the Indian Air Force.
- Akash is powered by Ramjet-rocket propulsion system.

23 PM-KISAN SCHEME EXTENSION

CONTEXT:

- The Union Cabinet has approved that the ambit of the Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) would be comprehensively extended.

ABOUT:

- With this decision, all land holding eligible farmer families (subject to the prevalent exclusion criteria) would avail of the benefits under this scheme.

More beneficiaries, greater progress:

- The revised Scheme is expected to cover around 2 crore more farmers, increasing the coverage of PM-KISAN to around 14.5 crore beneficiaries, with an estimated expenditure by Central Government of Rs. 87,217.50 crores for year 2019-20.

PM-KISAN: A path-breaking support incentive for farmers:

- The genesis of the PM-KISAN Yojana dates back to the interim Budget for the year 2019-2020.
- The key element of PM-KISAN is income support of Rs. 6000/- to the small and marginal landholder farmer families with cultivable land holding upto 2 hectare across the country. (**This has been expanded now**).
- The amount is being released in three 4-monthly instalments of Rs.2000/- each over the year, to be credited into the bank accounts of the beneficiaries held in destination banks through Direct Benefit Transfer mode.
- The scheme was launched in a record time of 3 weeks, on 24th February at a huge programme in Gorakhpur, Uttar Pradesh where the first rounds of instalments was paid to several farmers.
- So far, 1st instalment to 3.11 crore beneficiaries and 2nd instalment to 2.66 crore beneficiaries have been credited directly to the bank accounts of the farmer families.

24 INITIATIVE TO CONTROL FOOT AND MOUTH DISEASE (FMD) AND BRUCELLOSIS

CONTEXT:

- The Cabinet had cleared a total outlay of Rs. 13,343 crores to fully control these diseases amongst the livestock in the country in the next five years and subsequently eradicate these diseases.
- This decision indicates the spirit of compassion towards those animals who are a valued part of our planet but are not able to speak.

ABOUT:

- This initiative pertains to controlling Foot and Mouth Disease (FMD) and Brucellosis to support the livestock rearing farmers.

Threat of Foot and Mouth Disease (FMD) and Brucellosis:

- These diseases are very common amongst the livestock – cow-bulls, buffaloes, sheep, goats, pigs etc.

- If a cow/buffalo gets infected with FMD, the milk loss is upto 100% which could last for four to six months.
- Further, in case of Brucellosis the milk output reduces by 30%, during the entire life cycle of animal. Brucellosis also causes infertility amongst the animals.
- The infection of brucellosis can also be transmitted to the farm workers and livestock owners.
- Both the diseases have a direct negative impact on the trade of milk and other livestock products.

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OPTIONAL SUBJECTS

GEOGRAPHY By: Rohit Lodha	STARTS 21 JUNE
PUBLIC ADMINISTRATION By: Ashutosh Pandey	STARTS 24 JUNE
POLITICAL SCIENCE By: Dr. Piyush Choubey	STARTS 24 JUNE
HISTORY By: Piyush Kumar	STARTS 26 JUNE