Prelim Bits 28-06-2019

Diphtheria

- It is an infectious disease caused by the bacterium Corynebacterium diphtheria.
- The infection spread only among humans.
- The primary infection affects the throat and upper airways.
- It is spread by direct physical contact.
- Signs and symptoms include low fever, swollen glands on the neck, Swelling of soft tissue in the neck, fast heart rate.
- It particularly affects children aged 1 to 5 years.
- In 1978, India launched the 'Expanded Programme on Immunisation' which covers BCG (against TB), DPT (diphtheria, pertussis, tetanus) and cholera.
- In 1985, the it was converted to the 'Universal Immunisation Programme' (UIP) which also included DPT.
- The coverage of diphtheria vaccine is around 78% now.
- This has reduced the mortality and morbidity of diphtheria dramatically.
- However, Vaccine hesitancy is a growing all over the world.
- So cases of Diptheria have been going up in the last few years.
- In some states, majority of the cases were among school-going children and adolescents.
- This reflects low coverage of primary diphtheria vaccination.
- Declining immunity acquired by vaccination or naturally also a cause for the rising recent numbers.

Gaganyaan Project

- It is India's first Human Space Flight Programme set for 2022.
- It will make India the 4^{th} nation in the world to launch a Human to space, after the USA, Russia and China.
- It is being operating under a newly formed Centre, **Human Space Flight Centre (HSFC).**
- **Objectives of Gaganyaan Mission-**

    1. Enhance of science and technology levels in the country,
    2. Serve as national project involving several institutes,
    3. Inspire youth,
    4. Develop technology for social benefits and

5. Improve international collaboration
6. Improve of industrial growth.

- The spacecraft is being developed by ISRO.
- It consists of a **Service module** and a **Crew module**, collectively known as the **Orbital Module**.
- ISRO's **GSLV Mk III**, the three-stage heavy-lift launch vehicle, will be used to launch Gaganyaan.
- It will circle the Earth at a **low-earth-orbit** at an altitude of 300-400 km from earth for 5-7 days.
- The space suits were developed at Vikram Sarabhai Space Centre, Thiruvananthapuram.
- **Critical Technologies for Human Space Flight (HSF)**-

1. Orbital Module
2. Crew Escape System
3. Integration facility
4. Crew Module
5. Deep Space Network
6. Re-entry and Recovery system

- ISRO successfully demonstrated the re-entry technology '**Crew Module Atmospheric Re-entry Experiment' (CARE)**.
- **ISRO** will receive assistance from the **French space agency CNES**, with respect to training of Flight surgeons and long term activities on bioastronautics, combined development and experiments in space medicine area.
- Discussions are in with **Russia** in the areas of environmental control and life support system and part of the crew selection and training.

Plan to make use of Nuclear Wastes

- The **nuclear waste** produced as a byproduct of nuclear energy generation is **highly radioactive** and extremely dangerous for the environment and human populations.
- Nuclear waste is recyclable, once reactor fuel (uranium or thorium) used in a reactor, it can be treated and put into another reactor as fuel.
- There are many Nuclear Fuel cycles for recycling and **India** has adopted "**Closed fuel cycle**".

- This cycle aims at reprocessing of spent fuel for recovery of Uranium and Plutonium and recycling them back to reactor as fuel.
- High level radioactive waste also contains many useful isotopes like Caesium-137, Strontium-90, Ruthenium-106 etc.

- With the advent of new technologies, emphasis is accorded to separation and recovery of these useful radio-isotopes so as to make use of the waste for various societal applications.
- Using this kind of fuel cycle, the nuclear power can truly be considered sustainable.
- The nuclear waste management practices are at par with international practices following the guidelines of **'International Atomic Energy Agency'.**

The legacy of Maharaja Ranjit Singh

- A **Statue of Ranjit Singh**, who ruled Punjab for almost four decades (1801-39), was recently **inaugurated in Lahore**.
- He is Known as the **Sher-e-Punjab** (Lion of Punjab).
- The statue has his favourite **horse** named **Kahar Bahar**, a gift from Dost Muhammad Khan, the founder of the Barakzai dynasty.
- Earlier Punjab was ruled by powerful chieftains who had divided the territory into Misls.
- Ranjit Singh overthrew the warring Misls and established a unified Sikh empire after he conquered Lahore in 1799.
- He brought unity and welded together warring states.
- He combined the strong points of the traditional Khalsa army with western advances in warfare to raise Asia's most powerful indigenous army of that time.
- The boundaries of his empire went up to Ladakh in the northeast, Khyber pass in the northwest, and up to Panjnad in the south.
- Both Hindus and Muslims were given powerful positions in his darbar.
- He turned Harimandir Sahib at Amritsar into the **Golden Temple** by covering it with gold.
- His general **Hari Singh Nalwa** built the Fort of Jamrud at the mouth of the **Khyber Pass,** the route the foreign rulers took to invade India.
- He amassed huge wealth and was also in possession of the **Koh-i-Noor diamond**.
- In his will, Ranjit Singh gave it to Jagannath Temple in Puri, which was administered by the East India Company.

Source: Indian Express, PIB

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