

# 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<sup>th</sup> 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

