Alcohol Sanitizers and Coronaviruses

Part of: GS Prelims and GS-III- S&T

- The novel coronavirus has a **lipid envelope**. Soap being a detergent destroys this envelope. The same is true for alcohol also.
- **Structure of Lipid Envelope:**
  - SARS-CoV-2 particles, like other coronaviruses, are spherical and have proteins called **spikes** protruding from their surface.
  - These spikes **latch onto human cells**, then undergo a structural change that allows the viral membrane to **fuse with the cell membrane**. The viral genes can then enter the host cell to be copied, producing more viruses.
  - Recent work shows that, like the virus that caused the 2002 SARS outbreak, SARS-CoV-2 spikes bind to receptors on the **human cell surface called angiotensin-converting enzyme 2 (ACE2)**.
  - All of this is **held together by a fatty layer, called an envelope**.
- **Functioning of Alcohol in Sanitizers:**
  - The Envelope layer is disrupted when it comes into contact with soap or a hand **sanitiser with more than 60% alcohol**.
  - Disruption of the envelope leads to the **killing of the virus**.
  - Handwashing for 20 seconds at least kills the virus.
- **Indian Government’s Move:** The Government has notified **hand sanitizers as an essential commodity under the Essential Commodities Act, 1955**.