

1. eCovSens: Portable coronavirus detection kit

Prelims Syllabus: Science & Technology

Mains Syllabus: GS-III Science & Technology - Awareness in The Fields of IT, Space, Computers, Robotics, Nano-Technology, Bio-Technology

Why in News?

- The researchers from the National Institute of Animal Biotechnology (NIAB), Hyderabad, have developed a Biosensor that can Detect the Novel Coronavirus in Saliva Samples.

Highlights:

- Biosensors have been currently used across the world to detect toxins, narcotic drugs, and are also considered as a reliable tool to detect infectious diseases. The new portable device named eCovSens, can be used to detect the presence of novel coronavirus antigens in human saliva within 30 seconds using just 20 microlitres of the sample.

Mechanism:

- The in-house built biosensor consists of a carbon electrode and the coronavirus antibody.
- The antibody is capable of binding with the spike protein found on the outer layer of the virus.
- An electrical signal is generated when the antigen and antibody binds.
- Electrical components in the device further amplify this signal, process it, convert it to digital readings on an LCD display.
- The device can also be battery-operated as it uses very low voltage of 1.3V to 3V.

National Institute of Animal Biotechnology (NIAB):

- The National Institute of Animal Biotechnology is an Indian autonomous research establishment of the Department of Biotechnology, Ministry of Science and Technology (India).
- The primary mandate of NIAB is towards the development of sustainability and globally competitive livestock (farm animals) for public and industry through innovative and cutting-edge technology.
- The emphasis is on showing excellence in production of Globally competitive Livestock Products, Pharmaceuticals (Medicines), Nutritional Products and other Biologicals related to Animal Health Care.