6. NPL Synthesises Novel Security Ink

Prelims: Science & Technology

Mains: GS-III- Science and Technology- developments and their applications and effects in everyday life; Achievements of Indians in science & technology; indigenization of technology and developing new technology.

Why in News?

- National Physical Laboratory (CSIR-NPL) has recently synthesised a novel security ink that emits intense red colour when exposed to UV and emits green colour soon after the UV source is turned off.

About the News:

- A Novel Security Ink that emits intense red colour when exposed to 254 nm wavelength UV and emits green colour soon after the UV source is turned off has been synthesised by a team of researchers from the Delhi-based National Physical Laboratory (CSIR-NPL).
- The emission of red is due to fluorescence while green is due to phosphorescence phenomenon. Both red and green can be clearly seen with the naked eye under ambient conditions.
- The Red Colour is emitted at 611 nm wavelength while the green is emitted at 532 nm.

Lasting Phosphorescence:

- The researchers found the images printed on ordinary paper using the ink exhibits excellent physical durability and chemical stability. There was no noticeable change in emission from the images even at the end of six months when exposed to high temperatures and high humidity.
- The emission showed no changes when the images were exposed to various bleaching solutions. So, the ink has the potential to be used as a security feature on currency notes and passports.