

Subject: Environment

Q.41)

Ans) c

Exp) Option c is correct.

**Statement 1 is incorrect:** Chlorinated polyvinyl chloride (CPVC) is a thermoplastic produced by chlorination of polyvinyl chloride (PVC) resin, which is significantly more flexible and can withstand higher temperatures than standard PVC. Uses include hot and cold water delivery pipes and industrial liquid handling. CPVC, as PVC, is deemed safe for the transport and use of potable water. The ability to bend, shape, and weld CPVC enables its use in a wide variety of processes and applications. It exhibits fire-retardant properties.

**Medical establishments, such as hospitals and nursing homes, have to phase out chlorinated plastic bags, excluding blood bags as the government has amended the bio-medical waste management (BMW) rules. The reason for phasing out such plastics is that if they are incinerated at lower temperatures, there is a chance that dioxins, which are carcinogenic in nature, might be released.**

**Statement 2 is correct:** Bioplastic are a category of plastics derived from renewable bio-based resources. Conventional plastics are made from petroleum-based raw materials; bioplastics are made from 20 percent or more of renewable materials. **Bioplastic can be both biodegradable and non-biodegradable.**

Bioplastics are relatively expensive. While bioplastics degradation is fast in industrial composting facilities, it takes years in the natural environment. This might increase the litter due to wrong perception that bioplastics are naturally decomposed.

Bioplastics production results in pollutants, due to the fertilizers and pesticides used in growing the crops. **The bioplastics also contributes to more ozone depletion than the traditional plastics, and required extensive land use. Bioplastics increase stratospheric ozone depletion compared to conventional plastics; this is a result of nitrous oxide emissions during fertilizer application during industrial farming for biomass production.**

**Statement 3 is incorrect:** The Plastic Waste Management Rules (PWM), 2016 (amended in 2018), **banned the use of plastic carry bags below 50 microns' thickness all over the country.** Recently in August 2021, the Ministry of Environment, Forest and Climate change has notified new rules that have proposed to prohibit manufacture, import, stocking, distribution and sale of certain single-use plastics from January 1, 2022. Under the new rules, polythene bags of less than 75 microns in thickness will be banned from September 30, and bags of less than 120 microns will be banned from December 31 next year.

Knowledge Base:

Impact of Single use plastics:

- Plastic bags and Styrofoam containers can take up to thousands of years to decompose.
- Plastic bags can choke waterways and exacerbate natural disasters.
- Styrofoam items contain toxic chemicals such as styrene and benzene that are considered carcinogenic and can lead to additional health complications.

**Advantages of Bioplastics**

- Reduced use of fossil fuel resources.
- Smaller carbon footprint.
- Bioplastics do produce significantly fewer greenhouse gas emissions than traditional plastics over their lifetime.
- Faster decomposition.
- Bioplastic is also less toxic and does not contain bisphenol A (BPA), a hormone disrupter that is often found in traditional plastics.

Source: <https://en.wikipedia.org/wiki/Bioplastic>