

University of Delhi - Open Book Examination (Semester Examination)

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ANSWER 6 :

1. Plastic is a wonder material and its applications range broadly, from packaging to medical and engineering equipment and even aeronautics. They are not inherently bad, and they have many redeeming ecological features as their durability and low maintenance reduce material replacement, their light weight reduces shipping energy.

2. Uses: On an average, production of plastic globally crosses 150 Million tonnes per year. Its broad range of application is in:

- Packaging films
- Wrapping materials
- Shopping and garbage bags
- Fluid containers
- Clothing
- Toys
- Household and industrial products
- Building Materials
- Electronics Items
- etc.

3. Advantages of Plastic :

- Extreme versatility and ability to be tailored to meet specific technical needs.
- Lighter weight than competing materials reduce fuel consumption during transportation.
- Good safety and hygiene properties for food packaging.

- Durability and longevity
- Resistance to chemicals, water and impact.
- Excellent thermal and electrical insulation properties.
- Comparatively lesser production cost.
- Unique ability to combine with other materials like aluminium foil, Papers etc.

4. Note : From the above introduction, uses and advantages we can see that plastic is necessary and integral part of urban lifestyle

5. But at the same time it is evil for the environment, as plastic, as materials are not an issue, but it is their management that has been a challenge. As it is estimated that approximately 70% of plastic packaging products are converted into plastic waste in a short span.

According to reports, United states's Per capita Plastic consumption in 2014-2015 was 109 kg followed by Europe 65kg and China 38 kg. India ~~being~~ being on 5th position having 11 kg of plastic consumption Per capita.

6. Problem : Once plastic is discarded after its utility is over, it is known as plastic waste. It is infact plastic waste

never degrades, and remain on landscape for several years.

Burning of plastic results into formation of harmful and toxic gases which are known to cause the following severe health problems:

- Cancer
- Endocrine Disruption
- Child developmental disorder
- Immune Damage
- Neurological Damage
- Birth defect
- Asthma
- etc.

7. Disadvantages of Plastic :

- Plastic production also involved the use of potentially harmful chemicals which are added as stabilizers or colourants.
- Many of the plastic items have not undergone environmental risk assessment and their impact on human health and the environment is currently uncertain.
- Phthalates, which are used in the manufacture of PVC which is used in toys for young children and there have been concerns that phthalates may be released when these toys are sucked.
- As most plastics are non-degradable and they take a long time to break down once they are land filled, the landfill space required by plastic waste is a growing

concern. That's why the disposal of plastic products also contributes significantly to their environmental impact.

8. Impacts of plastic waste on the environment :

• Groundwater and soil pollution :

- Plastic is a material made to last forever and due to its chemical composition, plastic cannot biodegrade easily.
- When buried in a landfill, plastic lies untreated for years. In the process, toxic chemicals from plastic drains out and seep into groundwater, flowing downstream into lakes and rivers.
- The seeping of plastic also causes soil pollution.

• Pollution in oceans :

- The increased presence of plastic on the ocean surface has resulted in more serious problems. Since most of plastic debris reaches the ocean remaining floating for years.
- It leads to the dropping of oxygen level in the water, severely affecting the survival of marine species.
- Even plankton in oceans, are eating micro plastics and absorbing their hazardous chemicals.

9. Impacts of Plastic waste on Humans :• Burning Plastic :

- Causes various health problems, breathing problems and birth defect as the gas releases on burning of plastic are Halogens which are toxins to inhale.

• Stray Animals Eating Plastic waste :

- Nowadays we can see the stray animals like dogs, cows etc usually eat waste at garbage and dumping sites. As humans are dependent on cows for dairy product so they also get affected due to this.

10. Conclusion :

So, the statement that :

"Plastic waste is a by-product of urban lifestyle and is concerned as a necessary evil" is rightly said.

11. My Views :

- We should find some healthy solutions for plastic alternatives and spread awareness to use plastic wherever it is extremely required.
- Plastic waste should be segregated and recycled.

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