1. What are the various constituents of domestic sewage? Discuss the effects of sewage discharge on a river.
Ans: Domestic sewage contains four kind of impurities:
(i) Suspended solids: They are soil particles such as sand and silt.
(ii) Colloidal particles: They are inorganic and organic materials such as faecal matter, bacteria, paper and cloth.
(iii) Dissolved solids : They are nitrates, phosphates, ammonia, sodium, calcium and other nutrients.
(iv) Pathogens : Domestic sewage has pathogens of various diseases such as typhoid, cholera, dysentery, diarrhoea, etc. Effect of sewage discharge on river are:
(i) Eutrophication.
(ii) Growth of pathogenic bacteria.
(iii) Ageing of river where slit and decaying matters start accumulating and filling river.
(iv) Increase in BOD.
(v) Destruction of flora and fauna of that river.

2. List all the wastes that you generate, at home,school or during your trips to other places. Could you very easily reduce the generation of these wastes? Which would be difficult or rather impossible to reduce?
Ans: Plastic containers, paper, electronic goods, left over food, food package, disposable glasses, cup plates, polythenes, excreta, soap and detergent waste are the wastes that one can generate at home, school or during trips to other places. Yes, we can easily reduce waste through judicious use of material by changing our habits & life styles.
Out of these, polythene and plastic material are hard to dispose off as they are non- biodegradable and they can be recycled back.

3. Discuss the causes and effects of global warming. What measures need to be taken to control global warming?
Ans: Increase in atmospheric concentration of green house gases has resulted in rise of atmospheric temperature by 0.6°C (global wanning) in die 20th century. This has been confirmed by intergovernmental panel on climatic change (IPCC) in its reports of 1991 and 1992. This predictable change in near future may affect climate, sea level, range of species distribution, food production as well as fisheries resources in the oceans.
Causes of global warming:
(i) Increase in concentration of greenhouse gases.
(ii) Increase of automobile and use of fossil fuel.
(iii) Deforestation and change in land use.
(iv) CFC and aerosol emission from refrigerator and aeroplane.
(v) Increased particulate matter in lower atmosphere.
Effects of global warming:
(i) CO_2 fertilisation effect.
(ii) Many species of plants, being sensitive to temperature will die with sudden rise in temperature and their place will be taken over by scrub vegetation.
(iii) Loss of biodiversity.
(iv) Rise in sea level.
(v) Possibilities of drought and floods.
(vi) Erruption of plant disease and pests.

(vii)Change in rainfall pattern.
Methods that can reduce the atmospheric concentration of greenhouses gases are
(i) Reducing the greenhouse gas emission by limiting the use of fossil fuels, and by developing alternative renewable sources of energy (wind energy, solar energy etc.)
(ii) Increasing the vegetation cover, mainly the forests, for photosynthetic utilization of CO_2.
(iii) Minimizing the use of nitrogen fertilizers in agriculture for reducing N_2O emissions.
(iv) Developing substitutes for chlorofluorocar- bons.

4. Match the items given in column A and B:

	Column A		Column B
(a)	Catalytic converter	(i)	High noise level
(b)	Electrostatic precipitator	(ii)	Solid wastes
(c)	Earmuffs	(iii)	Particulate matter
(d)	Landfills	(iv)	Carbon monoxide and nitrogen oxides

Ans:
(a)-(iii), (b)-(iv), (c)-(i), (d)-(ii)

5. Write critical notes on the following:
(a) Eutrophication
(b) Biological magnification
(c) Groundwater depletion and ways for its replenishment
Ans:
(a) Eutrophication : It is excessive growth of algae, plants and animals in water bodies due to the nutrient enrichment particularly with nitrogen and phosphorus. It is both natural and accelerated. It leads to loss of bio-diversity and cuases chemical accumulation in food chain and ageing of water body.
(b) Biological magnification : Increase in concentration of persistent chemical at successive trophic levels is called eutrophication. This happens because a toxic substance accumulated by an organism can not be metabolized or excreted, and is thus passed onto next trophic level, e.g., DDT.
(c) Ground water depletion and replacement:Ground water depletion, a term often defined as long term water level declines caused by sustained ground water pumping, is a key issue associated with ground water use. Many areas of India experiencing ground water depletion.
The most servere consequence of excessive ground water pumping is that the water table, below which the ground is saturated - with water, can be lowered. If ground water level declines too far, then the well owner might have to deepen the well, drill a new well, or at least attempt to lower the pump.

6. Why does ozone hole forms over Antarctica? How will enhanced ultraviolet radiation affect us?
Ans: A large amount of ODS (Ozone Depleting Sub-stances) like CFCs, N_2O, halons, SO_2, CH_4, Cl-are released by advanced countries like USA, Japan, European countries. These are released in stratosphere, drift towards poles and reach there before the coming of winter. During winter (temp. 85°C) ice clouds are formed over Antarctica and no sunrise is received in polar areas. It

catalyses release of Cl from CFCs. With the coming of spring season, Cl reacts with ozone in the presence of sunlight and converts O_3 into O_2 causing ozone depletion/thining of ozone shield in stratosphere called ozone hole. This hole disappears in summer due to free mixing of air ofAntarctica with therestofthe global air.
Effect of Enhanced UV Radiation:
(i) Snow blindness or inflammation of cornea.
(ii) Damage of skin cells and development of skin cancer,
(iii) Damage to nucleic acids and proteins
(iv) Reduced immunity
(v) Higher number of cataracts in humans.

********** END **********