

UNIT – 4

ENVIRONMENTAL POLLUTION, ENVIRONMENTAL POLICIES AND PRACTICES

(A). Very short type questions and answers. (1 mark each)

Q1. Define pollution.

Ans: Pollution can be defined as an unfavorable alteration of the physical, chemical and biological compositions/characteristics of our surrounding environment. [It is caused by both natural and human activities, which results in the addition of substances i.e. pollutants (which may be solid, liquid or gas) or any form of energy (such as thermal, sound, radioactive, etc.) to the environment at a rate faster than it can be dispersed, diluted, decomposed, recycle or stored in some harmless form, thereby affecting the quality and availability of natural resources, properties, monuments,, growth, reproduction, development, health and lives of organisms.]

Q2. What is solid waste?

Ans: Solid wastes can be defined as any of the useless and unwanted products in the solid state derived from the activities of the society that are being discarded. [Solid waste includes garbage, construction debris, commercial refuse, sludge from water supply or waste treatment plants, or air pollution control facilities, and other discarded materials. Solid waste can come from industrial, commercial, mining, or agricultural operations, and from household and community activities. The negative impacts of solid waste include air, water, soil and land contamination, provides a favourable habitat for various pathogens, makes the soil infertile, effects the aquatic life, gives rise to many germs etc.]

Q3. What is radioactive pollution?

Ans: Pollution caused by the emissions of energy above the threshold value from radioactive substance in the environment is termed as radioactive pollution. [It is caused as a result of unearthing or exposure of radioactive substances naturally or by human activities through atom bomb explosions, etc. The ill-effects of which are skin/bone cancer, tissue damage, mutation etc. in living organisms. It makes the land, water and air contaminated thereby impairing any growth of life forms in the affected area.]

Q4. What do you mean by climate change?

Ans: Climate change can be defined as the alteration in the average atmospheric conditions, weather pattern of a region that had prevailed for many years. It is the biggest environmental concern at present. [The climate change affects the average annual rainfall over an area as well as non-periodic, uneven changes of seasons. One major consequences of climate change is the “Global warming”. Change in the climate is a matter of concern for the living organisms as they are directly dependent on the atmospheric conditions for their nutrition, growth, reproduction, development and sustenance of their health and life.]

Q5. What do you mean by Green House Effect?

Ans: The accumulation of greenhouse gases leads to the absorbance/entrapping of solar radiations that bounces back from the earth's surface, resulting in the increase in the temperature of the earth, this phenomenon is termed as Green House Effect. [The major causes of the Green-House effect is the emission of Green House gases from automobiles, industrial emission, deforestation etc. other factors includes the combustion, burning of fossil fuels, volcanic eruptions, etc. The ill-consequence of the Green-House effect includes melting of polar ice caps and snow, rise in sea-level, inhospitable environmental condition, etc., which directly or indirectly affects the health and lives of organisms.]

Q6. What is Acid Rain?

Ans: Acid Rains can be defined as any form of precipitation like rain, fog, snow, etc., containing high level of Sulfuric acid, Nitric acid etc. having pH values less than 5.7 is termed as Acid Rain. Oxides of nitrogen and sulfur, released from various sources like coal-burning power plants, factories automobiles, volcanic eruption, decaying vegetation, etc. [The oxides of nitrogen, sulfur reacts with the rain water and forms nitric acid and sulfuric acid respectively. When the clouds precipitate, the acids also pour down with the rain, falling on mountains, monuments, aquatic bodies and on land, thereby affecting the land, vegetation, aquatic organisms, monuments and quality of the soil.]

Q7. When Air (prevention and control of pollution) Act was came into force?

Ans: May 16, 1981

Q8. What are the objectives of Water (prevention and control of pollution) Act?

Ans: The objectives of Water (prevention and control of pollution) Act are as follows:-

- (i) To prevent and control the water pollution.

- (ii) To maintain wholesomeness of water.
- (iii) To establish control on state boards for prevention and control of water pollution.
- (iv) To empower the boards of prevention and control of water pollution.
- (v) To provides penalties for contravention of the provision of the Act.
- (vi) To establish control on state water testing laboratories.

Q9. When was Wildlife (Protection) Act enacted?

Ans: 9th September 1972.

Q10. Mention the causes of generation of solid waste?

Ans: The causes of generation of solid waste are listed below:-

- (i) **Agriculture and mining activities**-straw, dung, left-out harvested materials, left-out ores, etc.
- (ii) **Household activities**-food wastes, metal, plastic, glass, bottles, vegetables peels, scraps etc.
- (iii) **Bio-Medical activities** - glass bottles, plastic, syringes, discarded equipment, etc.
- (iv) **Industrial activities** - residue of cut-out or processed materials, Sludge from water treatment plants, Chemical manufacturing companies, petroleum refineries, paper mills, smelters and other industries.
- (v) **Food processing industries**- metallurgical chemical and pharmaceutical unit's breweries, sugar mills, paper and pulp industries, fertilizer and pesticide industries are major ones which discharge toxic wastes. During processing, scrap materials, tailings, acids etc.
- (vi) **Commercial refuse** – bags, items used for Packages viz. wrappers, plastics, foils, etc.

(B) Short type questions and answers. (2 marks each)

Q1. Mention the major strategies to migrate Air Pollution.

Ans: Some of the major strategies to migrate to migrate Air Pollution are as follows:-

- (i) Devices like crankcase ventilation valve or catalytic convertor can be used to reduce the emission from automobiles.
- (ii) Smokes and dusts from industries can be minimized by use of electrostatic precipitators.

- (iii) Gases from the industries can be removed by differential solubility of gases in water, by filtration or absorption using activated carbon.
- (iv) Radioactive wastes should be buried under the earth safely.
- (v) Different and legislation should be imposed so as to minimize the cause and effect of air pollution.

Q2. Mention the ways to control water pollution.

Ans: Some of the ways to control water pollution are as follows:-

- (i) **Sewage treatment:** Raw sewage before dumping into rivers or ocean should be treated to remove the potential pollutants, on sewage treatment plants.
- (ii) **Control the industrial effluents:** The industrial effluents must be treated to remove the potential pollutants, before releasing in the water bodies.
- (iii) **Recycling:** Various kinds of recyclable wastes should be recycled instead of releasing them directly in water bodies or dumping them on land so as to minimize the waste volume and waste generation.
- (iv) **Control of agricultural wastes:** Use of fertilizers and pesticides should be minimized so as to ensure obstruction from getting washed away in water bodies.
- (v) **Enactment of laws:** Legislation must be involved in holistic water bodies so as to ensure conservation of the water bodies, keeping it pollution free and in dealing with the environmental crimes related to water.

Q3. Write down the major effects of soil pollution.

Ans: Some of the major effects of soil pollution are as follows:-

- (i) The physical, chemical, and biological properties of soil changes due to soil pollution.
- (ii) The soil pollution increases the toxicity level of soil.
- (iii) Heavy metals destroy the useful microorganisms present in the soil and infers with the nutrient content of the soil.
- (iv) Overuse of agrochemicals leads to bio-magnification and soil electrification.
- (v) Improper dumping of sewage in the soil gives rise to many vector borne diseases.

Q4. How soil pollution can be controlled?

Ans: Soil pollution can be controlled by the following measures:-

- (i) Control tipping or sanitary landfill method should be followed for disposal for solid wastes.
- (ii) Recycling of solid waste should be emphasized.
- (iii) Regulation in the use of inorganic fertilizers.

- (iv) Sewage waste containing biodegradable materials can be converted into organic manure and used as fertilizer.
- (v) Pesticides should be avoided rather biological pest killing methods should be adopted.
- (vi) Proper insulation of Industries like atomic power plants should be done to avoid leakage of isotopes and ionizing radiations into the soil. The effluents should also be treated before release in the environment.

Q5. What are the major causes of Nuclear Hazards?

Ans: The two major sources of Nuclear Hazard are as follow:-

- (i) **Natural sources:** Cosmic rays coming from the outer space, terrestrial radiation from radio-nucleosides present in the crust of the earth, soil, air, water etc.
- (ii) **Artificial sources:** Refining of platinum, uranium, thorium, in nuclear power plants, nuclear explosions, mining, radiation therapy and x-ray diagnostic procedures are some of the artificial or man-originated sources of nuclear hazards.

Q6. Mention the important health risks due to radiation exposure.

Ans: Some of the important health risks due to radiation exposure are as follows:-

- (i) Damage of living tissues due to ionizing radiations.
- (ii) Non-ionizing radiations damage the eyes, causes skin burns, etc.
- (iii) The ionizing radiations emitted from nuclear explosions causes genetic defects, teratogenic changes, etc.
- (iv) Mutations due to ionizing radiations may give rise to cancer, birth defects & in severe cases death.
- (v) Radioactive elements present in the food increases various risks to human health.
- (vi) Radioactive elements present in the aquatic bodies possess a great risk to human health.

Q7. What are the causes of climate change?

Ans: The main cause of climate change is the "Green House Effect", triggered by human activities mainly, viz. burning of fossil fuels, like coal, oil, wood, etc. which increases the concentrations of carbondioxide, a major green house gas in the atmosphere. Factors like cutting down of forest, increasing human population, land deterioration, automobile and industrial emissions etc. contributes directly or indirectly to climate change. Natural factors like volcanic eruption, forest fires, natural gas leakage, floods, etc. also directly or indirectly affect the climate.

Q8. Write a brief note on ozone layer depletion?

Ans: Ozone is a colourless gas which is found in the Stratosphere region of the earth's atmosphere. It protects us from the harmful radiations coming from the sun, which otherwise affects our respiratory system, eyes and the skin.

The reduction in the concentration of ozone in the stratosphere region is termed as ozone depletion. The depletion is caused mainly by the chemicals containing the elements chlorine and bromine; the halogens. One of the major reasons for ozone layer depletion is the emission of Chlorofluorocarbons (CFCs) from various sources viz. Industrial emissions, Refrigerator, Aerosol sprays, paint industries etc. The extent of destruction of ozone molecule by the CFCs can be estimated as such that one chlorine atom can affect one lakh ozone molecule.

Ozone layer depletion first captured the attention of the whole world in the later-half of 1970 over Antarctic region. Since then, a lot of researches have been carried out to find the possible effects and its causes. Some of the effects of ozone layer depletion are as follows:

A. EFFECTS ON HUMAN HEALTH

- (i) Ozone layer depletion leads to a large quantum of ultraviolet radiations reaching the earth which can cause cancer & cataract in human beings.
- (ii) UV rays suppress the human immune system.
- (iii) Constant exposure to UV radiation can cause photo-allergy, resulting in the skin irritation & outbreak of rashes.
- (iv) The depleted ozone molecules can cause difficulty in breathing, chest pain, throat irritation, hamper lung functioning, etc.

B. EFFECTS ON AGRICULTURE

- (i) Physiological and developmental processes of plants are affected.
- (ii) It impacts timing of the development of plants.
- (iii) It interferes with the distribution of plant nutrients.
- (iv) It affects the metabolism of plants.

Q9. Write down the effects of Acid rain on Human health and Agriculture?

Ans: Some of the effects of acid rain on human health and agriculture are as follows:

A. EFFECTS ON HUMAN HEALTH

- (i) Acid rain reduces visibility of distant objects.
- (ii) Acid rain releases particulates that are causative agents of lung disorders and heart diseases.

- (iii) Acid rain causes severe burns when comes in contact with human body.
- (iv) Acid rain affects the ground water available for drinking purposes.
- (v) Acid rain affects the crops on which human beings are dependent.
- (vi) Acid rain affects the aquatic organisms which are a source of food for humans.

B. EFFECTS ON AGRICULTURE

- (i) It weakens plants by washing away the protective film on leaves & it stunts their growth.
- (ii) Acid rain changes the soil & water bodies into inhospitable environment for plants.
- (iii) The quality & production of products are affected by affecting the soil pH, nutrients, etc.
- (iv) It kills the useful microorganisms present in the soil that are helpful to the plants under natural conditions.
- (v) It interferes with the nutrient concentration in the soil thereby affecting the crops.
- (vi) It affects the normal physiological processes of the crops.

Q10. Write down the main provisions of Wildlife (Protection) Act 1972?

Ans: The main provisions of Wildlife (Protection) Act 1972 are as follows:

- (i) Prohibition of hunting of specified wild animals, birds and plant species.
- (ii) Setting up, management of National parks & Wildlife sanctuaries.
- (iii) Control of trade & commerce in wildlife and its products.
- (iv) Defining terms related to wildlife.
- (v) Appointment of wildlife warden and duties.
- (vi) Providing breeding programmes for endangered species.

(C). Broad type questions and answers. (5 marks each)

Q1. Define Air pollution. Discuss the causes of Air pollution?

Ans: Air pollution is the introduction of undesirable substances in air, naturally or artificially through human activities, which leads to harmful impacts on human health, property and nature.

CAUSES OF AIR POLLUTION

The causes of Air pollution are widespread, caused by both natural and human activities, ranging from the release of hydrocarbons, organic compounds,

carbonmonoxide to particulate & gaseous matters, released by burning of fossil fuels viz. coal, petroleum, etc. Some of the major causes of air pollution are described below:

- (i) **Dust particles:** Dust storms, volcanic eruptions, burning of fossil fuels, wind, automobile exhaust, etc. releases dust particles in the air causing air pollution.
- (ii) **Agricultural activities:** Various agricultural practices like use of aerosol pesticides, slash and burn method of practices, fumigations, burning of agricultural wastes, etc. releases pollutants that affects the air.
- (iii) **Industrial emissions:** Industrial processors such as metallurgic plants, smelters, chemical plants, petroleum refineries, chimney exhaust, pulp & paper mills, etc. releases a greater proportion of pollutants in the atmosphere, thereby affecting its quality.
- (iv) **Automobile exhaust:** Combustion of petrol & diesel releases various gaseous pollutants like nitrogen oxides, carbon monoxides and almost a quarter of the hydrocarbons in the atmosphere which pollutes the air.
- (v) **Ionizing radiations:** Unearthing/exposure of radioactive elements, testing of atomic weapons & atomic explosions release harmful ionizing radiations in the environment, which adversely affects the quality of the air as well.
- (vi) **Aerosols:** Fine solid particles or liquid droplets suspended in air are considered to be harmful for both plants and animals which adversely their physiological processes.
- (vii) **Chlorofluorocarbons (CFCs):** CFCs are certain compounds used in refrigerators for cooling. Contained in Air-conditioners, paints, aerosol sprays, etc., they are responsible for the depletion of the ozone layer in the stratosphere region, which with the passage of time affects the quality of the air.

Q2. Write about the effects of Air pollution?

Ans: Some of the effects of air pollution are as follows:

- (i) **Death:** The most hazardous effect of air pollution is death in severe cases due to accumulation of poisonous gases. The harmful air pollution corrodes all the body passages, reduces the oxygen carrying capacity of blood, etc. which ultimately leads to death if untreated.
- (ii) **Diseases:** Various respiratory diseases like asthma, bronchitis are caused due to air pollution. Also certain pollutants called premature ageing, reduction in the oxygen carrying capacity by the blood, skin and mucous membrane of the alveoli, causing irritations.
- (iii) **Greenhouse effect:** Concentration of gases like carbon dioxide, methane, nitrogen oxide, chlorofluorocarbons (CFCs), etc., increases the temperature

of earth resulting in global warming. These gases when mixes with the air, causes serious climate change, affects life, health and property of life-forms.

- (iv) **Destruction of crops:** Smog i.e. smoke mixed with fog causes heavy damage to crop resulting in heavy agricultural losses. Impure air interferes with the plant's physiological process thereby impairing its proper growth, reproduction and development.
- (v) **Chlorosis and Necrosis:** Presence of sulphur dioxide and fluorides in air causes insufficient production of chlorophyll in leaves leading to chlorosis. Also gases like sulphur dioxide, nitrogen dioxide ozone and fluorides causes breakdown of cell known as necrosis.
- (vi) **Acid rains:** Oxides of nitrogen and sulfur, released from various sources like coal-burning power plants, factories automobiles, volcanic eruption, decaying vegetation, etc. discharged in air when mixes with rain water and poured down back onto the earth constituting the acid rain. Such precipitation affects the air, land and water bodies, affecting the quality of the nature bodies, lives, health and property of the dwelling organisms.
- (vii) **Ozone layer depletion:** The ozone layer present at the stratosphere serves as an umbrella to protect the dwelling organisms on earth from the harmful ultra-violet rays of the sun. Use of aerosols, CFCs, etc. destroys ozone layer that lead to cancer, eye, skin irritation, etc.

Q3. Define water pollution. Discuss the causes of water pollution?

Ans: Water pollution refers to any type of aquatic contamination either due to natural factors or human activities that causes decrease in the quality of the aquatic bodies and affects the lives of aquatic organisms, the extreme case of which is the death of aquatic organisms. It also affects the health of other living in many ways viz. heavy metals interferes with the normal physiological activities, dysentery, typhoid, cholera are some of the water borne diseases which badly affects the human health.

CAUSES OF WATER POLLUTION

Pollutants responsible for water pollution can be domestic sewage, hazardous chemicals, sediments of soil erosion, oil spills, contaminants released from industries and many more. Some of which are as follows:

- (i) **Domestic sewage:** With the rise of population and lack of proper Sewage disposal/treatment strategies, the domestic sewage throne in water bodies causes nutrients accumulations leading to eutrophication. The process interferes with the foods of aquatic ecosystem and pollutes the water and also release of harmful pollutants affects the lives, property and health of living organisms.

- (ii) **Industrial effluents:** Organic and inorganic influents are directly released in water bodies by the industry leads to water pollution affecting the lives, property and health of living organisms.
- (iii) **Agriculture:** Chemicals, mainly the non-biodegradable ones used for agricultural pesticides and fertilizers are washed off during rain and reach the water bodies causing water pollution, thereby affecting the lives, health and property of living organisms in many ways.
- (iv) **Oil spills:** In seas and oceans, while transporting oils via ships, leakages may leads to oil spill. The spilt of oil get accumulated on the surface of water and thereby affecting the marine life.

Q4. Describe the effects of water pollution?

Ans: The effects of water pollution are as follows:

- (i) **Human health:** Drinking of contaminated water leads to various water borne diseases viz. typhoid, cholera, amoeba dysentery and other intestinal infections, which may be fatal. The harmful heavy metals and other chemicals interfere with the normal physiological and biological activities, affecting the gastrointestinal tract, skin, etc.
- (ii) **Death of aquatic organisms:** The heavy metals released by industries in water are harmful for aquatic life and causes death of aquatic organisms. The toxic non-biodegradable chemicals accumulate in the food chains, causing bio magnification.
- (iii) **Genetic defects:** Drinking of water contaminated with radioactive substances may cause cancer, teratogenic changes and other objects at the genetic level.
- (iv) **Biological Oxygen Demand (BOD):** The amount of oxygen required in an aquatic ecosystem is called BOD. The death of aquatic organisms occurs due to the scarcity if oxygen.
- (v) **Algal bloom:** Sewage accumulated in the coastal water causes rapid increase in the number of the dinoflagellates (algae) forming a condition called “bloom” as a result of eutrophication. These blooms release toxic substances that cause death of fishes and is called red tide.
- (vi) **Eutrophication:** The nutrient enrichment in the water bodies leads to BOD, chocking of gills of the fishes, undesirable and unfavorable aquatic condition, affecting the lives of aquatic organisms.

Q5. Define soil pollution. Describe the causes of soil pollution.

Ans: The top layer of the earth crust i.e. the soil is the thin layer of organic and inorganic material that covers the earth’s surface. The undesirable changes, caused by various pollutants affecting the quality and texture of soil, leading to loss of agriculture, living organisms present in the soil, flora, etc. is called soil pollution. The

condition may arise naturally through heavy wind, rain impact, floods, etc. or through human activities viz. deforestation, shifting cultivation mining, etc.

CAUSES OF SOIL POLLUTION

Some of the causes of soil pollution are as follows:

- (i) **Accidental leakage:** Accidents of vehicles that carry fuel or waste directly affects the soil. The leakages of isotopes and radioactive waste from atomic power plant also cause soil pollution.
- (ii) **Chemicals:** Various chemical used in our day-to-day life, such as pesticides, insecticides various fertilizers, etc. when used in excess causes soil pollution.
- (iii) **Acid Rain:** The gases like sulfur dioxide, nitrogen dioxide gets mixed with rain water to form sulfuric acid and nitric acid thereby coming down to the earth's surface as acid rain which corrodes the soil surface.
- (iv) **Domestic sewage and anthropogenic wastes:** Sewage, sludge and other contaminants acts as major sources of soil pollution, especially in urban areas dumping of anthropogenic waste also causes soil pollution.
- (v) **Industrial waste:** The biodegradable and non-biodegradable substances such as heavy metals, chemicals, solid wastes, etc. released by industries cause soil pollution.

Q6. Define noise pollution. Describe the causes of noise pollution.

Ans: Any unwanted, irregular, unrythmic offensive agent creating unpleasant sound that disturbs hearing, the result of which may be mental fatigue, headache, high blood pressure, hyper tension, permanent hearing loss etc. is termed as noise pollution.

CAUSES OF NOISE POLLUTION

Some of the causes of noise pollution are as follows:

- (i) **Automobiles:** Irregular and unpleasant sound arising from engines, blowing of horns, etc. in heavy traffic results in disturbances in hearings, which becomes unbearable at some point.
- (ii) **Construction Works:** Various constructional works involve the use of heavy machines viz. in case of mining works, extraction works, manufacturing works, etc. produces heavy noise which are very unpleasant.
- (iii) **Industries:** Industries manufacture involves a lot of machines for manufacturing and production plants create heavy noise during their operations.
- (iv) **Others:** Others sources includes burning of crackers, use of loud speaker recreational activities, explosion of bomb, massive angry debates, etc.

Q7. Describe the ways of solid waste management.

Ans: Solid waste refers to the wastes in solid state. It is required to be recycled or disposed safely for minimizing its volume. The strategy for solid waste management includes proper collection of sewage, its safe disposal and also recycling for future utilization.

Solid waste can be mitigated using the following ways:

- (i) **Sanitary landfill:** In this method, a pit is dug on the ground manually. Solid waste s are dumped inside the pit and allowed to decompose slowly by natural action.
- (ii) **Compositing:** In this method, the biodegradable waste viz. agricultural waste, cattle dung, domestic waste etc. are stored in a tank, allowing it to decompose. The result of which is utilized to produce biogas and also applied as manure.
- (iii) **Incineration:** In densely populated areas, solid dry wastes are burnt down and the heat evolved is utilized for various other purposes. This process is called incineration.
- (iv) **The 3 R's (Recycle, Reuse and Reduce):** Materials like glass, old paper can, newspaper, plastic, rubber, etc. can be recycled, reduce using or reuse again in order to control the solid waste as a part of the solid waste management.

Q8. Describe how urban and industrial waste can be controlled.

Ans: In order to control urban and industrial waste management, various strategies can be applied which include three main components:

- (i) Source reduction
 - (ii) Recycling
 - (iii) Disposal
- (i) **Source reduction:** The most effective way of waste reduction and control is to reduce the source of waste. Usage of less material production, during packing, reuse of products, not only reduces the use and energy of production but also leads to reduction in waste production. Non-biodegradable material should be avoided as well. In individual level, care should be taken in order to contribute less waste through our daily activities.
- (ii) **Recycling:** Recycling means to use component of waste that may be used again, either in the same or different way and reduce its negative impact as well as expenditure. The energy and the labour used in the manufacture of the product and the pollution associated can be minimized greatly by recycling.
- (iii) **Disposal:** Disposal of solid waste can be done most commonly through a sanitary landfill or through incineration. The organic material in the buried solid waste decomposes due to the action of microorganisms. The microorganism uses the

organic materials as food, which in turn provide them nutrients and energy for their activities. In case of incineration, the solid wastes are burnt to ashes. In this way the urban and industrial waste can be controlled.

However, the control measure mentioned above requires hard labour, but still it's efficient.

Q9. Describe the effect of climate change on human health and agriculture.

Ans: The effect of climate change on human health and agriculture are as follows:

A. ON HUMAN HEALTH

- (i) Injury, illness and death risks from adverse climate change.
- (ii) Rise of food and water borne diseases.
- (iii) Insufficient food and water supply.
- (iv) Mental fatigue, agony, mental illnesses are especially vulnerable to extreme heat.
- (v) Various diseases related to skin, respiratory systems are observed as a result of climate change.
- (vi) The climate change affects the normal growth, reproduction and development of many living organisms dependent on it.

B. ON AGRICULTURE

- (i) Increase droughts and floods are likely to affect the production variably.
- (ii) Indirect climate impacts include increased competition from weeds, expansion pathogens, alteration in crop agro ecosystems.
- (iii) The unfavorable climatic condition hampers the physiological process of the plants (crops) affecting its growth and development.
- (iv) The normal time period required for a crop plant is disturbed, thus affecting its growth and yield
- (v) The germination and overall development is affected.
- (vi) The bad air quality hampers the nutrients, water concentration, pH of the soil and other useful minerals needed for the crops.

Q10. What is Global Warming? Describe its effect and human health and agriculture.

Ans: Global warming is the gradual increase in the average temperature of the earth's atmosphere and its oceans that is believed to initiate permanent changes in the earth's climate.

Global warming occurs when carbon dioxide and other greenhouse gases released from various natural and artificial sources accumulate in the atmosphere and absorb the solar radiations that would otherwise have bounced off from the

earth's surface and escape from the earth, resulting in the global increase in temperature of the earth.

The effects of Global Warming on human health and agriculture are as follows:

A. EFFECTS ON HUMAN HEALTH

- (i) Melting glaciers and snow-capped mountains cause floods thereby affecting human lives, property, giving rise to many diseases
- (ii) Extreme temperature creates shortage of water and droughts like conditions.
- (iii) Various water-borne, respiratory and genetic diseases will increase in occurrence.
- (iv) Weak individual with high susceptibility will tend to be most vulnerable to heat related illness.
- (v) Global warming affects the crops which ultimately affects the human health.
- (vi) Global warming affects the climate adversely thereby affecting the human health.

C. EFFECTS ON AGRICULTURE

- (i) Global Warming leads to an increase in pest insect population, harming yields of crops.
- (ii) More extreme temperature and precipitation prevents the crops from growing.
- (iii) Higher greenhouse gas viz. CO₂ affects the crop yield.
- (iv) Higher greenhouse gases levels reduce the nutritional value of most food crops.
- (v) The physiological processes in crops are hampered thereby affecting their yield, growth and development.
- (vi) Global warming affects the climate adversely thereby affecting the crops.