

Test Series: GSA

Question #1

- 1- What are the effects of global warming in Pakistan? And propose suggestions.

Introduction:

Global warming is the increase in average temperature of earth due to emission of Green house gases into the atmosphere by anthropogenic and natural activities. It has going to increase from the 18th century due to industrial revolution and increase of vehicles, into the roads. Apart this, growing urbanization, and increase in deforestation in the earth also contribute to the global warming. All the countries of the world are effected by the repercussions of global warming. Unlike others, Pakistan is also vulnerable to the harmful effects of global warming.

Effects of Global Warming in Pakistan

Following are the effects of global warming in the Pakistan.

① **Melting of Glaciers:-**

Global warming results in the melting of glaciers in the country.

As thousands of glaciers are present in Pakistan. Due to increase in global warming, these glaciers melt down, result in increase in flow of waters in rivers, contributed to floods.

② **Increasing number of Natural disasters**

Global warming has made the country vulnerable to the natural disasters. The country is facing drastic floods and droughts that has effected the agriculture, infrastructure, and people badly. The 2022 floods has effected 33M people and led to loss of \$10B. Not only this, the crop yield has also decreased due to droughts in few areas of sindh and balochistan.

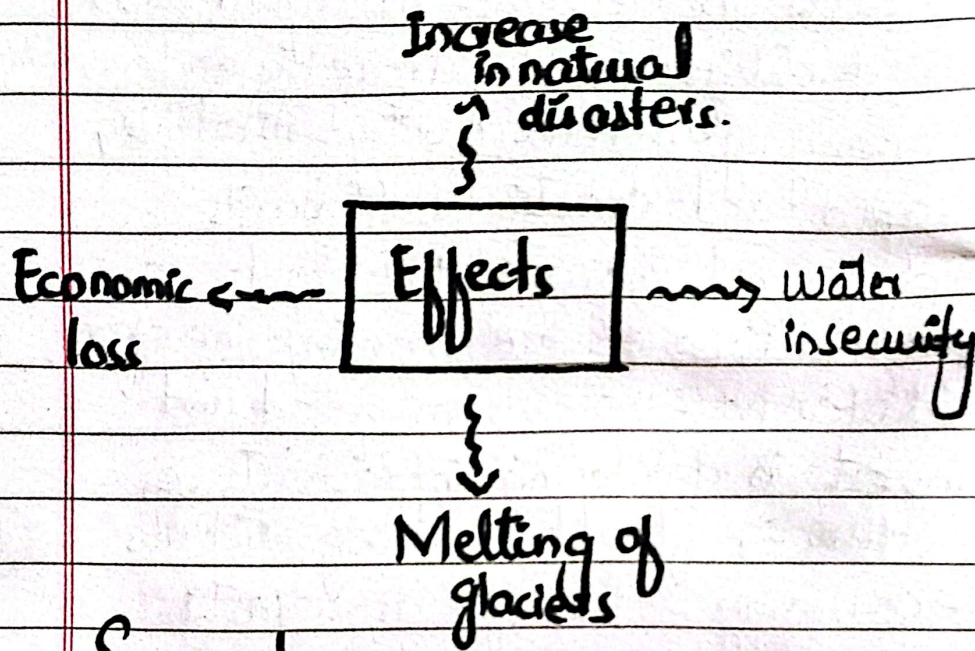
3) Economic loss.

The economy of the country is badly effected by the drastic impacts of global warming. The increase in global temperature results in decrease in agricultural productivity due to droughts and changing weather country. Apart this, rapid and drastic cloud bursts destroyed infrastructure and agriculture of the country. Therefore, Pakistan have to import food and invest in developing infrastructure; Hence, global warming disturbs economy through its drastic impacts on different areas of the country.

4) Water insecurity in country.

Global warming is the precarous threat to the water resources of the country, as it has melted fresh water in form of glaciers, and open river water that are evaporated due to increase in temperature. Not only this, rise of ~~sea~~ water level effected

areas and people around the water resources. Therefore, it has changed Pakistan from water scarce to water stress country.



Suggestions:

Following are the suggestions for the country to mitigate with harmful impacts of global warming.

①. Afforestation and Reforestation.

Forests play an important role in absorption of CO_2 from the atmosphere. These are called as the natural carbon sinks.

Therefore, planting of forests help Pakistan to mitigate with

harmful effects of global warming. For instance, Costa Rica has planted the trees to protect biodiversity and mitigate with the harmful effects of global warming.

2- Strengthen disaster risk management system.

As the Pakistan is facing natural disasters due to the global warming. Strengthening Disaster risk management system helps the country in the pre-disaster and post-disaster management, reduces the negative effects of global warming.

3- Adopt Renewable Energy sources.

Adoption of renewable energy sources such as hydroelectric energy, wind energy, solar or biogas energy production methods helps the country to reduce GHG emission and ensure the sustainable development of the country. For instance, China has switched from non-renewable to renewable energy to reduce

GHG emission and mitigate with global warming.

② Describe the importance of balanced diet and enlist disorders associated to unbalanced diet.

Introduction:

Balanced diet is the intake of food in such a way that a person will intake every nutrient in balanced amount. For an healthy life, it is essential to maintain balanced diet. Without it, a person can face many health diseases due to deficiency of nutrients.

Importance of balanced diet.

Following are the importance of balanced diet.

Maintain health.

The appropriate intake of all nutrients can make a person healthy. All the nutrients in the specific amount are

essential for the normal functioning of the body. For instance, proteins are essential for hairs, nails and other body cells. Calcium is essential for strong bones. Without these nutrients, a body become vulnerable to diseases. Hence, balance diet is essential for maintaining health of a person.

Protect from diseases.

A balance diet protects individual from acute and chronic diseases.

It help to maintain adequate amount of nutrients in our body, prevent over dose of nutrients and strengthen immune system.

For instance, intake of fruits, vegetables, and meat can prevent anemia, digestive diseases, iron deficiency, and viruses through enabling our body to defend against any infectious agent.

Maintain growth and development of body

Balance diet is essential for normal growth and development of the body. Malnutrition stunted growth, weaken bones, teeth, effect overall development of body. Intake of carbohydrates, fats, vitamins, proteins, and other minerals in adequate and balanced amount is necessary for growth and development of body.

Sharpen memory and make individual active and energetic.

Balanced diet sharpen memory and make individual active and energetic. Deficiency of nutrients in body make people dull and cause alzheimer.

Zinc, iron, vitamin B3 and other minerals are essential for growth and development of brain.

Disorders due to UN-balanced diet.

①. Osteoporosis and Arthritis.

Deficiency of calcium, phosphorus, and magnesium in our body weakens bones and joints, cause osteoporosis and arthritis.

2) Gums Scurvy and bleeding

Deficiency of vitamin C cause gums scurvy and bleeding of gums.

3) Night blindness

Deficiency of vitamin A cause short-sightedness, long sightedness or night blindness.

4) Rickets and Marasmus

Malnutrition cause rickets and marasmus in children.

Q3) Explain strata and functions of atmosphere.

Introduction

The air around us is called atmosphere. It consist of 78% of nitrogen, 21% of oxygen 0.03% of carbon dioxide and

other trace gases. It is divided into many layers that are performing various functions for sustaining life on the earth.

Strata

'The atmosphere are divided into different layers called strata.'

This division of strata are on the basis of its distance from the earth. Every strata of atmosphere has specific functions.

Strata of atmosphere.

There are 5 strata of atmosphere.

- (1) Troposphere
- 2) Stratosphere
- 3) Mesosphere
- 4) Thermosphere
- 5) Ionosphere

1- Troposphere.

Troposphere is the first layer of atmosphere. It is about 0-16km from the earth. The upper part of troposphere is called as Tropopause.

The temperature of layer increase with increase in length. Clouds formation takes place in this layer.

2- Stratosphere.

Stratosphere lies above troposphere from 16 to 30 km. The temperature of this layer is high compared to troposphere. The upper part of stratosphere is called stratopause. Ozone is present in this layer that protect earth from UV rays.

3) Mesosphere.

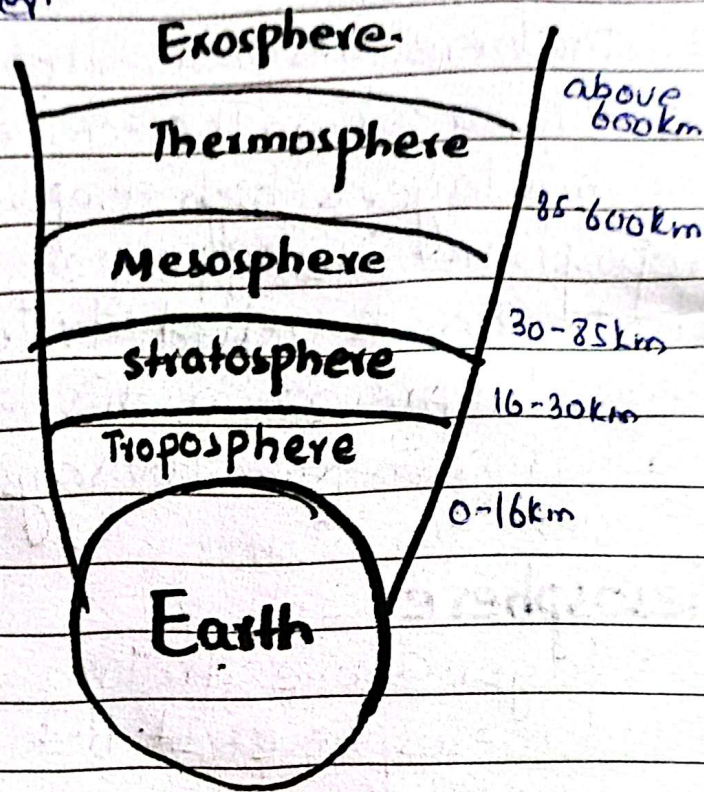
The layer above stratopause is called mesosphere. It has upper layer called mesopause. It lies from 30 km to 85 km from the earth. The temperature of this layer increase with increase in distance from the earth.

4) Thermosphere.

It is the hottest layer of atmosphere due to which it is called as thermosphere. It lies from 85 km to 300 km from the earth. The ions are present on this layer.

Exosphere.

The outer layer of the atmosphere is called exosphere. Artificial satellites usually present in this layer.



Functions of Atmosphere.

Following are the functions of atmosphere.

1) Provide oxygen and CO_2 to plants and animals.

Atmosphere provide oxygen and CO_2 to plants and animals for exhalation and inhalation.

It help in performing normal

functioning of their bodies. Without atmospheres the life on earth can't exist

Provide nitrogen to bacteria.

As humans and animals require CO_2 and O_2 , few bacteria like nitrifying bacteria require large amount of nitrogen for performing their activities. They fix nitrogen from atmosphere and provided it to plants for food making and their other functions.

Protect from harmful U-V rays.

The atmosphere consist of ozone layer that shield the earth from harmful U-V rays of sun and protect life on earth from effects of U-V rays. It reflect back these rays and allowed entry of less harmful rays of sun.

4) what is SWM? what are the available disposal methods?

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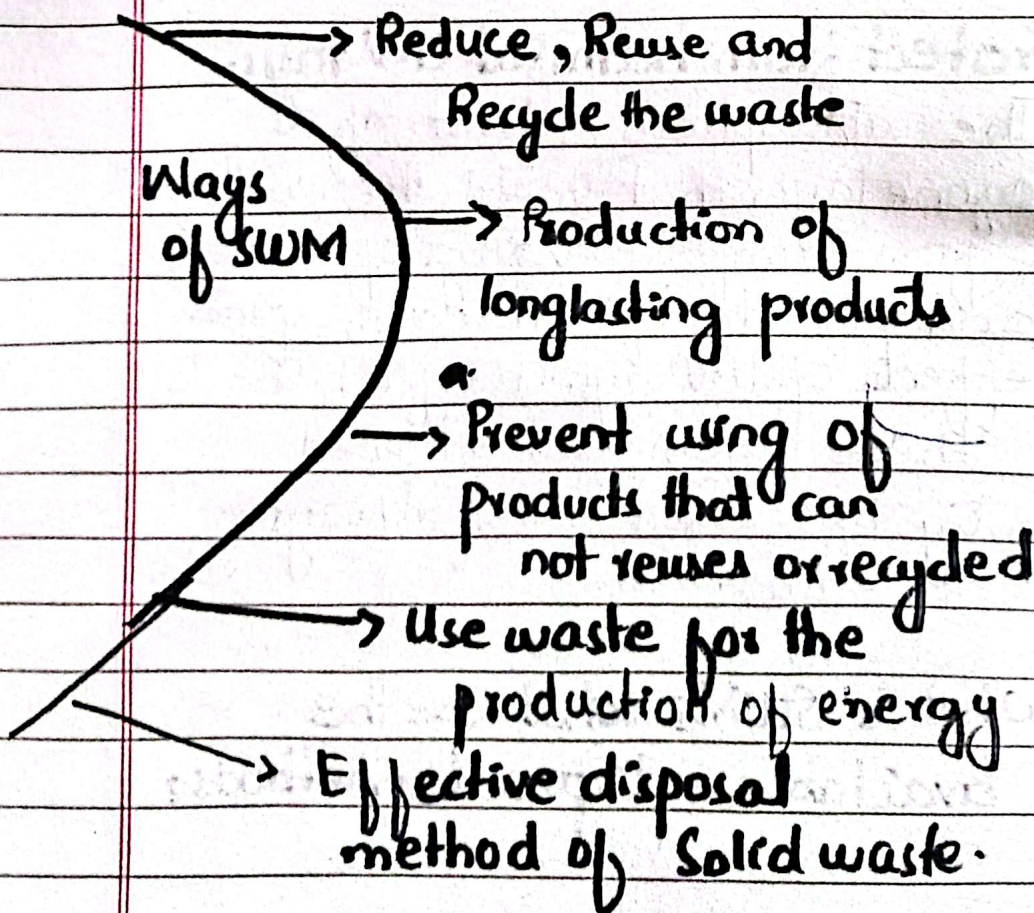
Solid

DAY: _____

Sustainable Waste Management

Solid

Sustainable waste management is the method of identification, collection, transportation and disposal of solid waste from the environment. Effective management of solid waste is essential for keeping the surroundings clean and preventing diseases and other negative effects of the waste.



Disposal methods of solid waste

Following are the methods of disposal of solid waste

① Open dumping.

It is the method in which waste is dumped into an open place away from residential area of public. It is an old and widely used method in developing countries. However, it results in release of harmful gases into the atmosphere, cause air pollution.

② Burning of waste.

It is the method in which waste is collected from different areas and burned openly. Although it dispose waste, but release large amount of harmful gases into the atmosphere that cause ozone depletion, global warming and respiratory diseases to near population.

③ Land filling.

Landfills are the large underground sites designed in such a

way that it do not effect ground water. The wastes dumped into landfills. This waste is mostly decomposed in these landfills.

Modern Incineration and energy production method.

The solid waste is collected and incinerated. The heat released by incineration are used in production of energy, preventing atmospheric pollution.

Question #2.

① Define the following.

① Contamination

Definition.

Food contamination is the process in which the quality of food is deteriorated through addition of infectious agents such as virus or bacteria, or other products to reduce the quality of food.

② Food Adulteration

The process of debasing the quality of food or enhancing the quality through adding or removing any important nutrient or component from it is called food adulteration.

③ Food Preservatives :

Food preservatives are the components added on food from protecting food from micro-organisms. such as salting of food.

4) Food additives..

Food additives are the components added on food to change the original flavour of food such as flavonoids.

② How human activities deteriorated the atmosphere and propose controlling measures.

Introduction

The surroundings around us are called atmosphere. Atmosphere plays a significant role in sustaining the life in earth. It has provided important gases.

such as oxygen and CO_2 to humans for their activities. These gases are present in a specific amount in atmosphere such as nitrogen in 78%, CO_2 in 0.03% etc. But human activities has changed the quality of atmosphere from recent centuries due to performing certain activities that release harmful gases into the atmosphere.

Human activities that effected atmosphere.

Following are the human activities that badly effected atmosphere.

Use of vehicles.

Overuse of vehicles result in release of harmful gases such as CO and NO into the atmosphere.

These gases absorb the rays of sun and prevent them from reflecting back from earth, increases global temperature.

Not only this, these gases react with ozone in atmosphere, cause

Ozone depletion

Deforestation

Humans are cutting trees for building infrastructure such as roads, houses, motorways, dam and for agricultural purpose. These forests are the home of biodiversity and lungs of air. Cutting of these forests results in loss of biodiversity and increase amount of harmful gases into the air. Not only this, forest act as barrier for large rocks, and absorb water. Deforestation lead to increase in floods due to torrential rains.

Industrialization

Rapid industrializations lead to release of toxic gases such as CO , CO_2 , NO into the atmosphere that cause global warming, acid rain and respiratory diseases such as asthma, bronchitis and lung cancer into humans.

Burning of fossil fuels:

The burning of fossil fuels such as coal, oil and natural gas for energy results in release of carbon monoxide and sulphur oxide into atmosphere that has deteriorated the quality of atmosphere.

Measures:-

Following are the practical measures for the protection of atmosphere

① Use of alternative source of energy.

Use of alternative source of energy prevent release of harmful gases and fulfill the energy need of the country. The alternative source include wind energy, hydro energy, solar, biodiesel, biogas and geothermal energy.

② Afforestation and Reforestation

Aforestation and reforestation lead to protection of environment as forest are lungs of environment. It cleans the toxic gases from the atmosphere and keeps them clean.

Use of scrubbers and filters.

Use of scrubbers and filters on the chimneys of the industries help to prevent release of CH_4 and other harmful gases into the atmosphere because it cleans toxicity from the gases and protects environment.

③ Define remote sensing: How remote sensing can help in environmental science!

Remote Sensing.

Remote sensing is the process of gathering of information from a far distance through an instrument called Remote sensors.

These instruments detect the Electromagnetic rays into the earth and reflect back in earth from spacecrafts and

aircraft mounted around
earth.

Application of Remote Sensing in Environmental Science.

Following are the applications
of remote sensing into the
environmental science.

① Urban planning.

Remote sensors help in urban
planning through detecting
information from earth and
drawing map related to
forests, infrastructures and
other agricultural land. It
help individual to take data
easily and use this data
for sustainable planning
of cities.

② Prevent deforestation

Remote sensors helps in
preventing deforestation through
providing data essential for
effective management of

forests away from urban life.

Agricultural management:

The data acquire by remote sensors are used in management of agricultural land and cities equally and prevent destruction of agricultural land for growing urbanization

Water resource management.

It provided data for monitoring for water resources such as glaciers, rivers, and help in effective water resource management.

Disaster risk management.

It help in detection of disasters such as floods, hurricanes, and for effective pre and post disaster management.