

Q(a). Technological advancement has increased the food production but decrease the quality of food. Explain.

Ans. Answer: Impact of Technological Advancement on food production and quality:

Technological advancements in agriculture have indeed led to increased food production through practices such as mechanization, genetic modification, and the use of synthetic fertilizers and pesticides. While these advancements have helped fuel shortages and improve food security in many regions,

they have also raised concerns about the quality and sustainability of food produced. Here's a brief explanation of how technological advancements have impacted food quality:

- 1- **Loss of Nutritional Value:** Intensive agricultural practices focused on maximizing yield often prioritize quantity over quality. Monocropping, soil depletion and the use of high yield crop varieties lead to a decline in the nutritional content of food, including vitamins, minerals and phytochemicals.
- 2- **Chemical Residues:** The widespread use of synthetic fertilizers, pesticides and herbicides in modern agriculture can result in chemical residues remaining on food products which have adverse effects on human health.
- 3- **Genetic Modification:** While genetic modification (GM) of crops has the potential to increase crop yield, enhance nutritional content but concerns have been raised about the long-term health and environmental impacts of GM crops.
- 4- **Loss of Biodiversity:** Intensive farming practices can lead to the loss of biodiversity, including the genetic diversity

of crops and the destruction of natural habitats. Loss of biodiversity in agricultural systems can reduce resilience to pests, diseases and environmental stresses, ultimately compromising food security and ecosystem health.

5- Environmental Degradation: Modern agricultural practices, such as deforestation, irrigation and the use of chemical inputs can contribute to environmental degradation, including soil erosion, water pollution and green-house gas emissions. These environmental impacts reduce the quality of food.

Overall, technological advancements have undoubtedly increased food production but also raised important questions about the quality of food. Balancing food production along with quality is the significant challenge of 21st century.

Date: _____ Day: _____ (b) What are the problems facing solid waste management?

b) Problems of solid waste management:

Solid waste management faces a range of challenges that vary depending on factors such as population density, urbanization levels and socio-economic conditions. Some common problems facing solid waste management include:

c

1) Inadequate Infrastructure: Many regions lack sufficient infrastructure for collecting, transporting and disposing of solid waste

2) Population Growth and Urbanization: Rapid population growth and urbanization exacerbate solid waste management challenges by increasing the volume of solid waste.

3) Lack of Public Awareness: Limited public awareness about waste management practices, including waste segregation, recycling and proper disposal

4) Improper Waste Disposal: Improper waste disposal contribute to water and soil pollution.

5) Waste Composition and Contamination: The composition of waste varies, depending upon the economic activities which contaminate drinking water sources.

Q1(c) What is dengue fever? Explain its symptoms Day:

C. Answer:

- Dengue fever:

Definition: "Dengue fever is a mosquito-borne viral infection caused by the dengue virus, which is transmitted primarily by the *Aedes* mosquito species."

- Symptoms of Dengue Fever:

- i - High fever: Sudden onset of high fever, often reaching temperatures of 104°F (40°C)
- ii - Severe Headache: Intense headache, typically behind the eyes or in the temples.
- iii - Muscle and joint pain: severe muscle and joint pain, often described as "break bone fever."
- iv - Fatigue and weakness: profound fatigue, weakness and lethargy
- v - Nausea and vomiting: Nausea, vomiting and loss of appetite, which can lead to dehydration.
- vi - Mild Bleeding: Individuals may experience mild bleeding manifestations, such as nose bleeds, etc.

- In context of Pakistan: In Pakistan, dengue fever is a significant public health concern, particularly during monsoon season when mosquito breeding increases. Efforts to control dengue fever in Pakistan include vector control measures, public awareness campaigns and manage cases effectively.

(8)

Q10) Discuss plate tectonics in the Tsunami. Distinguish the Richter magnitude scale and volcanic Explosivity Index.

d. Answer:

- Plate Tectonics in the Tsunami:

Plate tectonics play a crucial role in the occurrence of tsunami. When tectonic plates beneath the ocean floor shift suddenly due to seismic activity, such as earth quake or volcanic eruptions, it can displace large volume of water, triggering tsunami.

For example: Subduction zones, where one tectonic plate is forced beneath another, are common sites for powerful earthquakes and subsequent tsunami.

- Richter Magnitude scale and volcanic Explosivity Index:

The Richter magnitude scale and Volcanic explosivity Index both are used to measure the intensity of geological events, but they applied to different phenomena.

- The Richter magnitude scale quantifies the energy released by earthquakes based on the amplitude of seismic waves recorded by seismographs. It is a logarithmic scale, meaning that each whole number increase on the scale represents a tenfold increase in the amplitude of seismic waves and approximately 31.6 times more energy released. It is primarily used for measuring the magnitude of earthquakes.

Date: _____

- The volcanic explosivity index is used to measure the intensity of volcanic eruptions based on factors such as the volume of erupted material, eruption cloud height and duration of eruption. The VEI is a logarithmic scale range from 0 to 8, with each whole number increase representing a tenfold increase in the volume of erupted material and energy released.

In summary, the Richter magnitude scale quantifies the energy released by earthquakes, the volcanic explosivity index assesses the explosiveness and intensity of volcanic eruption. Both scales provide valuable information of geological events on Earth's surface and human population.