

Mock-4

Environmental Science

PART-II

Q. 3

Answer: Effects of Environmental
Pollution:

Introduction: Pollution is any unwanted things for human beings in the environment. Some types of environmental pollution are Air, water, soil pollution etc. These environmental pollution have a wide-ranging and detrimental effects on planet, ecosystems, human health, economy etc.

Some effects of environmental pollution are as follows:

(1) A threat to the future of planet: -

Environmental pollution causes deforestation and diminishing the amount of oxygen in atmosphere. Resultantly, greenhouse gases like CO_2 , CH_4 , CFCs, HCFCs etc amount increases, which causes Greenhouse effect that leads to global warming and ultimately climate change. Besides, water level in sea is on rise due to melting of glaciers as Average temperature is rising. Hence, planet future is at threat due to

Environmental
Pollution.

(2) Ecosystem disruption :

Environmental pollution pollute air, water bodies and soil. Consequently, habitat destruction and loss of biodiversity occur which disrupts the ecosystem.

(3) Harsh impacts on Human Health :

Several diseases are caused by environmental pollution such as respiratory diseases (Asthma, Bronchitis, lung cancer), waterborne diseases (Cholera, Dysentery, Hepatitis) etc.

(4) Crisis of climate change.

The climate change include increase emission of GHGs, global warming, Urban Flooding, droughts, hurricanes, heatwaves, wildfires and so on.

(5) Economic effects and crisis

Economy has been badly suffered due to this menace like decreased in agricultural productivity, higher healthcare costs, and loss of tourism revenue.

(6) Social and cultural impacts :

It include displacement and migration of people at large scale. And thus, people have left their cultural practices, heritage sites due to environmental pollution.

(7) Continuous Environmental Degradation :

The environmental degradation is on rise as population is increasing and causes loss of biodiversity and accumulation of pollutants.

(8) Depletion of Ozone layer :

The increased amount of ^{CFCs, HCFCs} CO_2 and air pollutant deplete the ozone layer, which can cause a skin cancer to human being

Conclusion :

Environmental pollution effects are many in number. However, it is high time that the effects be mitigated through collective action, including reduction in pollution disposal, less emission of air pollutant, adoption of sustainable practices, and development of clean clean technologies. Indeed, environmental protection is crucial for not only ~~ecoon~~ ecosystem but also for human population.

Q. 4 :

Answer : Effects of climate change and Rising Flooding : Measures to Counter Urban Flooding .

Introduction : Climate change is the phenomenon of variation in the pattern of a climate in different parts of the world. It involves global warming that is the rise in average temperature of planet. Due to rising global average temperature, glaciers are melting quickly. As a consequence, water level level in sea rises. According to a report which states that almost

more than 1.5°C temperature has risen in the current century and corresponding sea level raised more than 20 cm.

Hence, flooding is on rise as well.

It is pertinent to understand the phenomenon of climate change before controlling urban flooding.

Effects of climate change on
Rising Flooding:

Are following

(1) Increased frequency and intensity of rainfall.

This led to increased volume of water bodies, which ultimately led to flooding.

(2) Abrupt rise in sea-level

The increased average global temperature has enhanced glacier melting and thus sea level is rising and impacting coastal areas.

(3) Changes in Precipitation Pattern:

Sometimes, there are longer dry periods and intense rainfall, that lead to flash floods in urban areas.

Impacts of Urban Flooding:

Are as follows

(i) Damage to Infrastructure.

Flooding can cause damage to roads, buildings, bridges

and anything that comes in its way

(2) Disruption of Essential Services:

Flooding causes
disrupt power supply, water supply and
transportation network.

(3) Public Health risks:

Contaminated flood water
can cause diseases related to skin, eyes,
respiration due to toxins and pathogens.

(4) Loss to economy:

It causes huge loss
due to infrastructure damages, businesses
disruptions and destruction.

Measures to Control Urban Flooding:

Are as follows

(1) Sustainable Urban Planning and
Management:

The city shall be
planned according to the flood frequency
and reach, so that flooding can be controlled effectively.

(2) Improved Drainage System

The problem of de-watering
the flood stormwater can be improved
through this step. Furthermore, proper slope
be maintained in drainage design for ^{risk} water flow.

(3) Early Warning Systems and Disaster
Management:

There should be an early
calls and monitoring to evacuate and
prepared communities on time.

(4) Green infrastructure and avoiding encroachment to water bodies:

Mangroves forests should be established alongside bank of water bodies, and there should be no settlement near to flood^{prone} areas.

(5) Land-use planning and shifting population from flood prone areas to safe areas:

The construction in flood prone areas be avoided and people should be shifted from flood prone areas to safe areas.

Conclusion:

Effects of climate change are adverse and has led to rising flooding worldwide. However, the mentioned measures can counter the urban flooding upto maximum extent.

Q. 7

Answer: Eutrophication:

Definition: The process in which a water body becomes excessively enriched with nutrients, such as phosphorus and nitrogen, that inhibit excessive plant growth and promote algal bloom, leading to imbalance in aquatic ecosystems. The process is called

Eutrophication.

Types of Eutrophication: Are following

(1) Natural Eutrophication:

This occurs naturally with a long period process of aging of lakes and rivers.

(2) Cultural Eutrophication: It is also called Anthropogenic Eutrophication. It is caused by human activities, primarily the release of wastewater discharge and nutrients.

Causes of Eutrophication: Are as follows

(1) Excessive use of Fertilizer:

It is mainly entered to water from agricultural fields. It includes Nitrogen and Phosphorus.

(2) Urban Runoff:

Storm water runoff from urban areas carries pollutants, including nutrients into water bodies.

(3) Wastewater industrial discharge:

Untreated sewage and industrial wastewater release nutrients into water bodies.

(4) Deforestation:

Removal of trees and vegetation leads to increased erosion, which transports nutrients into water bodies.

(5) Atmospheric Deposition :

Airborne pollutants containing nitrogen and Phosphorus settle in water bodies.

Effects of Eutrophication :

Are as follows

(1) Algal Blooms : Excessive nutrients level fuel the rapid growth of algae, leading to algal blooms that can cover the water surface by giving it greenish color.

(2) Oxygen Depletion : The increased bacteria consume oxygen, leading to oxygen depletion and creating dead zones where aquatic life cannot survive.

(3) Marine life diminished :

Oxygen depletion and toxins released by some algae species can lead to the death of fish and other aquatic organisms.

(4) Loss of Biodiversity :

Eutrophication can adversely impact the diversity and abundance of species in affected ecosystems.

(5) Water Quality Decline :

Algal blooms and decomposition leads to unpleasant taste, odour of water.

Making it unfit for swimming and drinking ^{Purposes} ~~Source~~.

Solutions to Eutrophication

Are following

(1) Nutrient Management :

Implementing the required use

of nutrients and its controlled runoff through agricultural practices can reduce Eutrophication.

(2) Improved Wastewater Treatment :

Waste water treatment must be improved before discharging it into water bodies.

(3) Sustainable Land Use Practices :

It include afforestation, erosion control and sustainable design to reduce runoff and control Eutrophication.

(4) Use of Technology for removal of impurities :

Removal technologies like constructed wetlands, Phosphorus absorption material can reduce Eutrophication.

(5) Public awareness and Education :

Encouraging responsible nutrient management practices among farmers, industries and training in this regard can reduce Eutrophication to minimum level.

(6) Preservation of environment and pollution reduction :

Environmental protection, ecosystem preservation by reducing pollution can minimize Eutrophication.

Conclusion :

Eutrophication is a problem of polluting water bodies. And it has so many causes and far-reaching effects. However, by

implementing the mentioned solutions, it is possible to mitigate and prevent Eutrophication. Thus, the health and biodiversity of an aquatic organisms can be preserved.

Q. 8 Short Notes

b. Population Explosion.

Introduction and Definition :

It refers to the rapid and dramatic increase in the global human population over a relatively short-period.

Since past centuries, world population is growing exponentially. Initially, it took thousands of years to reach 1 Billion population. But now, it has surpassed 8 Billion population. And still it is growing at higher speed.

Causes: Are as follows

(1) Increased Birth rates :

The lack of family planning and contraception have led to more Births

(2) Decline in Death rates. :

The advancement in health care technology has declined

the death rate.

Effects of Population Explosion;
Are following

(1) Scarcity of Resource :

Increased demand has led to food insecurity, water crisis and energy crisis.

(2) Environmental impacts :

It include climate change, deforestation, habitat destruction, and environmental pollution.

(3) Urbanization and Overcrowding :

Expansion in cities growth has led to overcrowding of people.

(4) Social and Economic challenges

It involve poverty, unemployment, ~~the~~ corruption, and ^{increase} crime rate in society.

Solutions : Are as follows

(1) Population control through family planning :

There should be comprehensive family planning services and education regarding contraception and family future.

(2) Education and empowerment of Women :

Gender equality and women empowerment will

reduce excessive growth in Population
(3) Poverty Alleviation

Through this effective results can be obtained

e.g. Developed countries - less population
(4) Collaboration and International Cooperation

United Nation and other organization can play important role in this manner.

Conclusion :

Population explosion is a major problem and it is the need of hour that proper solutions shall be adopted to overcome this issue. Otherwise, Human will faces infinite problems

(3) 8 . short Notes

C. Deforestation

Definition : and Introduction :

The permanent removal of forests by human activities is called as deforestation. It puts an adverse impacts on environment and has several causes

Some - Causes causes are as follows

Causes of Deforestation :

(1) Population Explosion :
More population means more settlement and thus forest convert into habitat places

(2) Infrastructure Development :
like Roads, buildings, Dams etc leads to deforestation.

(3) Industrial Revolution and Industrialization :
It enhances pollution and population and thus forests cut.

(4) Fuelwood and Charcoal Production :
Woods are harvested for this purpose causes deforestation

Impacts : Are following

(1) Loss of Biodiversity
Destruction of habitats and threat to survival of species

(2) Climate change :
Increased CO_2 and reduced O_2 - leads to Global Warming and deforestation.

(3) Oxygen depletion :
Trees emit O_2 and
consume CO_2 .

(4) loss in revenue due to
declining tourism :
Forest are source
of beauty and attraction for
tourists

Solutions : Deforestation :

(1) Afforestation and Re-forestation :
More and more
trees be planted in this
regard.

(2) Sustainable land use practices :
Improving agricultural
and make effective use of
land in this manner.

(3) International Cooperation and Funding :
World Community
must act together to overcome
this issue

(4) Sustainable development and
environmental protection should go
hand in hand :

Development should
not harm environment and
vice versa.

Conclusion : Deforestation is one
of the most important environmental

Issue faced with the planet. Therefore, it needs a collective action from world community, governments and people to address deforestation and protect the world's forests.