Q. No. 2

General Instructions

1. Give numbering to headings
2. Do not write lengthy paragraphs. Write medium sized paragraphs with headings.
3. Do not use table for comparison and contrast questions.
4. Draw figures/diagram/flowchart where needed.
5. Start new question from fresh page.
6. Avoid writing wrong references.
7. Give more weightage to expressedly asked part/s of the question.
8. Change colour scheme for references to give them more visibility.
9. Manage time well.
10. Wide page borders are discouraged. Should be reasonable.

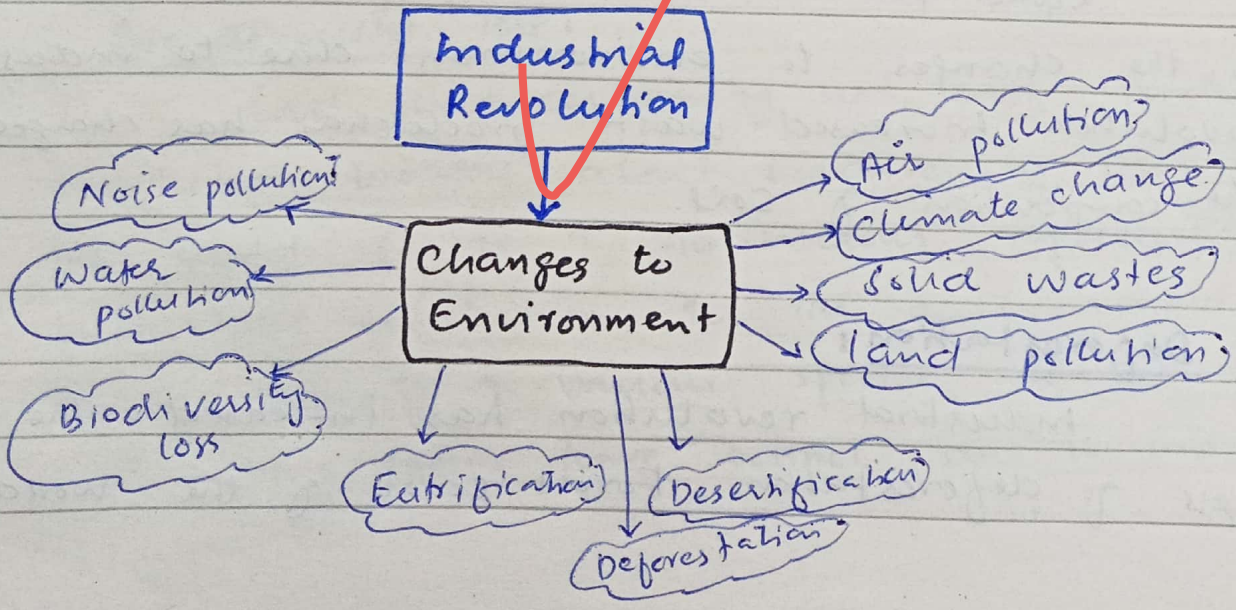
35

A) Industrial Revolution

1) Introduction:

Industrial revolution is the transformation of production techniques from traditional to modern ones, it has brought about a dynamic shift in economic, social and industrial sector brought a number of significant changes to the environment. It includes air pollution, global warming, water pollution, solid wastes, land pollution, and deforestation. It also brought changes to the environment in shape of biodiversity loss, eutrification, desertification and deforestation in the world.

2) Industrial revolution and change to the environment:



a) **Air pollution:**

Industrial revolution changed the gaseous composition of the environment. The use of fossil fuels has increased the concentration of Green House Gases (GHGs) like CO_2, Methane and carbon monoxide etc.

b) **Global warming:**

Another change industrial revolution brought to the environment is global warming and climate change. At present, over 50 C temparature is recorded on earth.

c) **Water pollution:**

Water pollution is also a change brought to the environmat by the industrial revolution. Industrial effluents have changed water composition.

d) **Land pollution:**

Land pollution also occupies a key position to the changes to environment due to industrial revolution. Increased waste production has changed the composition of soil.

e) **Deforestation:**

Industrial revolution has increased The process of deforestation. Forest cover of the world

received serious damages due to industrial revolution.

b) Desertification:

Industrial revolution has also accelerated the phenomenon of destrification by changing seasonal and climate patterns.

g) Eutrophication:

Eutrophication is also a change brought to the environment due to industrial revolution as it increased the use of fertilizers which end up in water bodies.

h) Noise pollution:

Most unnoticeable change of industrial revolution to the silent environment is the noise pollution. Unwanted sounds by heavy machinary brought this change.

i) Bio-diversity lost:

Last, but certainly not least, industrial revolution brought about biodiversity loss in the world. It is a horrendous repercussion of industrial revolution to the environment. The genetic diversity of various species are at risk and many species have been extinct due to industrialization.

3) Conclusion:

In the light of above discussion it can be concluded that industrial revolution has changed the production methods, but it brought various changes to the environment with awful implications.

B) Stockholm declaration

Explain a bit more.

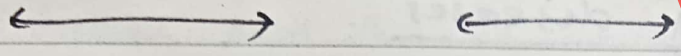
1) Introduction:

Stockholm declaration is the first environmental declaration of the United Nations. The Stockholm declaration was occured in 1972. It was the first international efforts to make environmental issues as global concerns. It consists of 26 principles related to the environment. Some brief principles are given below.

2) The principles of Stockholm declaration:

i) Protection of human right
ii) Safeguard of natural resources
iii) Protection of earth's carrying capacity
iv) Protection of renewable sources of energy
v) Protection of wild life
vi) Control of oceanic pollution
vii) Improve environment through development

viii) Financial assistance to developing countries
ix) Tax exemption to developing world
x) Planned human settlement
xi) Environmental education
xii) Integrated development
xiii) Use of science and technology
xiv) Environmental research
xv) Cooperation on environmental issue



Q. No. 3

(A)

1) Introduction:

Climate change is indeed a threat to humanity. It poses existential threat to mankind due to the fact that it is creating a range of social, environmental and economic challenges. However, there are multiple opportunities to tackle climate change. It includes abundance of renewable energy sources, technological development, increase in scientific researches, global cooperation on climate issue and rise of "Green Politics". On the contrary, incapacity of developing world, rise in global population, use of fossil fuels, and non-implementation of climate policies are some threats which can hamper efforts to counter climate change.

2) How climate change is a threat to humanity?

a) Increase in disasters:

Climate change increases disasters like floods and famine. It can damage human settlements and source of foods. Thus, it threatens mankind.

b) Spread of diseases

Climate change also spread diseases which can create hazardous health implications for mankind.

c) Biodiversity loss & impacts on food chain

With the increasing bio diversity loss, climate change can significantly affect the food chain. It causes a number of issue for mankind.

b) Water and food crisis:

Climate change also compounds the problem of water scarcity and food shortage. It can effect humanity drastically.

e) Economic crisis and income loss:

Climate change also robs the sources of revenue. It creates unemployment that will result in poverty and economic crisis.

3) Opportenities in countering the climate change:

a) Abundence of renewable energy:

As fossil fuels have brought about climate change due to Green House Gases (GHGs), abundent renewable energy sources in the world is an opportenity to replace fossil fuels and protect the environment. Solar, wind, hydal and theemal energy sources can help in replacing fossil fuels in the world.

b) Technological development:

Advancement in science and technology offers an opportenity to use innovative techniques to takle the problem of climate change. The use of carbon sink technique, hybrid cars and renewable engines for mechinary can be helpful to tackle climate change.

c) Environmental research:

Another opportunity is the increasing research in climate change and environmental issues. It will shift the dynamic of climate education that can be helpful in counting the threat of climate change.

d) Global cooperation:

Despite great powers rivalry and geopolitical clashes, world community is cooperating on climate change. However, there are a number of issues on climate cooperation. Yet, word countries are cooperating to tackle this issue.

4) Challenges to counter climate change:

a) Incapability of developing countries to switch to renewable energy sources:

One of the major challenge in countering the climate change is the incapability of developing countries to switch their energy sources from fossil fuels to renewable energy. Lack of funding from international community is a cause of concern.

b) Rise in global population:

According to the UN report, the planet earth hosts 8 billion people at present. Global population is also increasing at an unprecedented rate. It signifies the fact that the more world population grows, the greater threat erupts for climate stability. Thus, rise in world population is a threat to counter ~~locate~~ climate change.

c) **Uninterrupted use of fossil fuels:**

Despite the presence of renewable energy sources, world is using uninterruptedly fossil fuels. Coal, petroleum and oil are the major sources of energy for the world. It creates challenge to tackle climate change.

d) **Non-implementation of policies:**

Although a number of agreements and national policies on climate change have been chalked out, non-implementation of those policies is a setback to counter the threat of climate change in the world.

5) **Conclusion:**

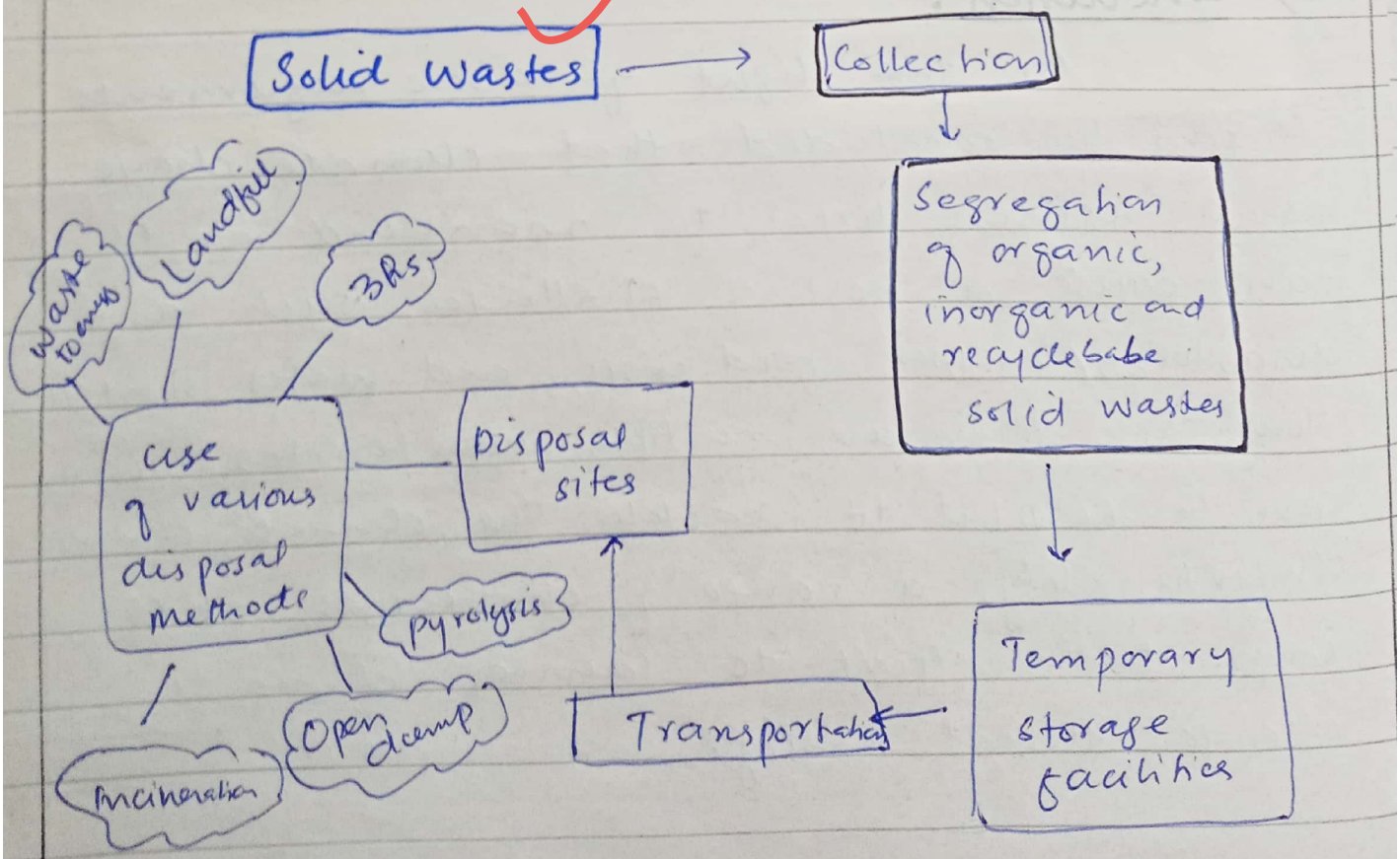
In the light of above arguments it can be concluded that climate change is a serious threat to mankind as it can cause a host of challenges such as disasters, diseases, food crisis, and water shortage. However, there are multiple opportunities which can be helpful to tackle the climate change. Unfortunately, a range of challenges still confront the effort to counter climate change threat easily.

(B) Solid Waste disposal techniques

2) Introduction:

Solid waste management is carried out through various techinques. It includes the use of 3Rs, landfill, composiing, incineration, waste to energy and pyrolysis methods. Initialy, solid wastes are collected at one place and site for disposal is decided. After that, solid wastes are transported. There are many challenges are opportenities can be seen in the disposal of solid waste in Pakistan.

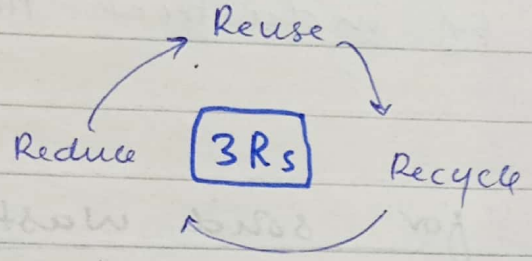
2) Solid Waste management:



3) Solid waste disposal technique:

a) Use of 3Rs:

In this technique, solid wastes are reduced, recused and recycled. It means to convert solid wastes for useful approach instead of discarding the wastes altogether.



b) Land filling:

Sanitary Landfills are used to dispose solid wastes. A site is selected and waste products and burried in a moat.

c) Incineration:

Incineration machine is used to burn the solid wastes at high temperature.

d) Biodegration:

Organic wastes are decomposed in a controlled environment.

e) Composting:

It is also the decomposition of organic wastes through the use of bacteria.

b) **Waste-to-energy:**

In this technique, solid wastes are used for producing energy through use of incineration or other.

g) **Pyrolysis:**

In this method, organic wastes are burned down by industrial thermal heat.

4) **Opportenities for solid waste disposal in Pakistan:**

a) **Wast land without population:**

Pakistan has a vast geography. Its population is concentrated in urban centers or rural prepheries. It has a vast unhabited land, so that can be used for lanfilling disposal technique of solid wastes.

b) **Lucrative business:**

Solid wastes are highly lucrative business. It can bring a huge amount of money. Therefore, it is an opportenity to hire private individuals to dispose of the refuses and solid wastes.

5) Challenges of solid waste disposal in Pakistan:

a) Growing urbanization:

Growing urbanization creates more solid wastes. It can challenge the management of solid wastes in Pakistan.

b) Growing population:

According to Census 2023, Population of Pakistan stands at 241.5 million. It compounds the challenge of solid waste disposal.

c) Bad governance:

Bad governance is another issue that harpers the effort to manage solid waste in the country.

d) Lack of funds:

Economic crisis and lack of funding to municipal corporation is another challenge that can reduce the role of managing solid wastes.

e) Lack of social acceptence to the jobs of waste disposal:

Another challenge to solid waste disposal in pakistan is the lack of social acceptence to the jobs of waste disposal.

6) Conclusion:

There are multiple techniques which can be used for solid waste management. For solid waste disposal, there are multiple challenges and opportunities in pakistan.

Q. No. 7

(A) EIA

1) What is EIA?

The EIA is stands for Environmental Impact Assessment. It is an approach to reduce the environmental damages. The EIA is a formal process to identify, evaluate, predict and avoid the environmental damages caused by any project or activity.

2) The process of EIA:

a) Identify:

In EIA, specialized human resources and institutions are involved to identify any project which may create environmental damages.

b) **Evaluate:**

After identifying, the EIA team will evaluate the risks involved in a project and suggest measures.

c) **Predict:**

The EIA team predict future environmental risk of a ~~clien~~ project.

3) **The conduct of EIA:**

a) **Project screening:**

The EIA team ascertain the type, location, cost and time frame of a project.

b) **Project scoping:**

In this, the future assessment of the project is carried out.

c) **Baseline data collection:**

It is carried out by visiting the site and data is called whether the project is near a stream, population or forest.

d) **Identification of effects:**

The environmental effects of a project are ascertained by the EIA team.

4) Advantages of EIA:

There are various advantages of EIA which are enumerated below:

i) Sustainable development
ii) Identification of environmental effects of projects
iii) Mitigation measures
iv) Control of environmental problems
v) Environmental awareness
vi) Improved decision making

5) Conclusion:

The EIA is a formal process of evalutating and predicting environmental damages of a project. It has numerous advantages.

B) Occupational health & safety

1) What is occupational health & safty:

Occupational health and safty is the science to identify, evaluate, predict and control the hazrads which may damage the health and well-being of workers and surrounding community

2) Model of occupational health and safty:

a) Management of office:

Occupational health and safty policy is carried out.

b) Occupational health and safty department:

Planning, identification of hazards, categorization of hazards and control measures are carried out.

c) Implementation:

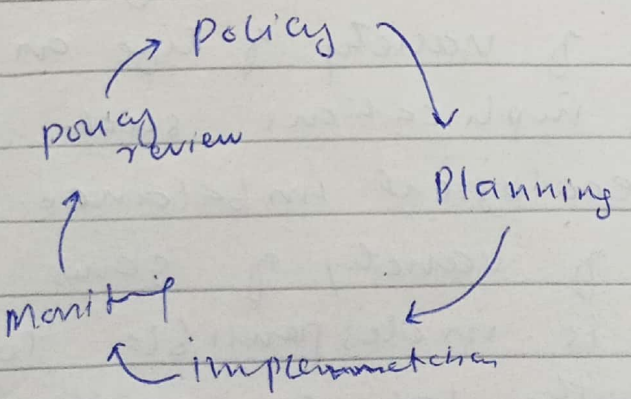
Policies are implemented to ensure the safty of workers.

d) Monitoring:

Monitoring is done by the department.

e) policy review:

policy review is done in case of shortcomings and new issues.



3) Benefits of occupational health and safty :

a) Healthy workers
b) reputation of organization
c) Compeliance of policies
d) Motivation of workers
e) control of environmental problems.

4) conclusion :

Occupational health and safty is carried out to ~~provide~~ ensure workers' wellbeing. It is done -theough various techniques and has multiple advantages.

Q. No. 8

a) Biodiversity loss :

Biodiversity loss is the extinction of various species and variety of genes. It is the reduction of variety of life on earth. It has various implications such as food crisis and ecological imbalance. Therefore, conservation of variety of genes and species ~~are~~ is indispensible to control the biodiversity loss on earth.

b) **Remote sensing:**

It is a process in which physical characteristics of an area is carried by detecting and monitoring by sun radiation from a distance.