44060 - Noora Shah - 006

Date: _____ Day: _____

Assignment : 3 Body Paragraphs on "Causes of Climate Change"

Climate change is primarily driven by increased concentration of Green House Gases in Earth's atmosphere due to human activities. Industrialization has been the most significant contributor to climate change, mainly through the emission of Green House Gases, energy consumption and environmental degradation. Since the industrial revolution, the combustion of fossil fuels such as coal, oil and natural gas in factories, power plants and transportation systems have emitted enormous amount of carbon dioxide, methane and nitrous oxide into the atmosphere. These gases trap

Date: _____ Day: _____

heat, leading to a gradual increase in global temperature, a phenomenon known as global warming. Additionally, industrial processes also releases fluorinated gases such as hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF_6). Unlike carbon dioxide or methane, these gases have extremely high global warming potentials, sometimes thousands of times higher than CO_2. When released into the atmosphere, even small amount of fluorinated gase can significantly contribute to climate change by trapping heat and altering atmospheric chemistry. Moreover, industrialization often produces significant air pollutants such as nitrogen oxides and particulate matters, which not only harm human health but also aggravate climate related disruptions like

Date: _____ Day: _____

acid rain and smog. Ultimately the increased level of combustion of fossil fuels in the industrial sectors amplify green house gases emissions, destabilize ecosystem and intensify the impact of climate change on human societies and the natural world.

The second major cause of climate change is deforestation and land-use change because it distrupts the Earth's natural carbon balance. Forests act as carbon sink, absorbing large amount of carbon dioxide from atmosphere through photosynthesis. Trees are the lungs of earth. A single mature tree can absorb upto 48 pounds of CO_2 per year. As massive areas of forests are cleared, usually for agricultural expansion, cattle ranching or infrastructure development, they are transformed

Date: _____ Day: _____

from vital carbon sinks into major carbon sources. When trees are cut down, burned or left to decay, the carbon stored in their biomass, roots and surrounding soil is released back into the atmosphere, increasing green house gases concentration. As a result, global temperature rises, contributing to climate change. In addition, the loss of forests reduces the planet's capacity to absorb existing carbon, while the increased temperature and dries conditions caused by fewer trees make the remaining forests more vulnerable to intense and uncontrollable wildfires, releasing even more CO_2. Moreover, it ~~destroys~~ disrupts regional rainfall patterns and destroys natural habitats. The Intergovernmental Panel on Climate Change (IPCC, 2023) reports that climate change is intensifying

Date: _____ Day: _____

the global water cycle, leading to more extreme rainfall and more severe droughts in many regions. This means that some areas may experience heavy rainfall, while others face prolonged dry spell. This variability has significant consequences, leading to biodiversity loss weakening the ecosystem that help regulate the climate

The third key contributor to climate change is agricultural process and livestock farming, because they release large quantities of potent green house gases and alter land use in ways that increase atmospheric carbon. Firstly, the application of synthetic nitrogen fertilizers to croplands leads to sustantial emissions of nitrous oxide (N_2O), a green house gas with much greater warming potential than

Date: _____ Day: _____

carbon dioxide. Agricultural soils are responsible for a large share of these N_2O emissions through microbial processes triggered by fertilizers use. Secondly, livestock farming produces considerable methane (CH_4) through enteric fermentation in ruminant animals and manure management. This gas has a much stronger heat-trapping ability than carbon dioxide, intensifying the green house effect by trapping heat far more effectively. ~~Thirdly~~ According to national estimates 43% of Pakistan's total Green House Gas emissions come from agriculture, primarily as methane (CH_4) and nitrous oxides (N_2O) released from livestock, rice cultivation, manure management and fertilized soils. As global demand for food continues to rise, these agricultural emissions contribute significantly

Date: _____ Day: _____

to climate change, making it harder to reduce the overall impact on the environment.