Chapter 1.9 Global Environmental Concerns

Part – I Objective Type Questions

1.	The spread of the 'Stratosphere' above the Earth's surface is_____ a) Below 15 km b) 10 to 50 km c) above 50 km d) above 100 km
2.	The pungent smelling and light bluish gas in Stratosphere is due to_____ a) Carbon molecules b) Ozone molecules c) Nitrogen gas d) Oxygen
3.	The ozone layer in the stratosphere acts as an efficient filter for ____ a) Solar UV- B rays b) X-rays c) Gamma rays d) UV-A rays
4.	Ozone layer is found in_____ a) Ionosphere b) Troposphere c) Stratosphere d) All
5.	The compounds that can easily break ozone molecules are_____ a) Chlorine b) Bromine c) Both a & b d) None
6.	CFC stands for_____ a) Chloro Fluro Carbons b) Carbon Fluorine Carbon c) Compact Fluro Carbons d) None of the above
7.	The main source of CFCs in household sector is_____ a) Televisions b) Refrigerators c) Washing machines d) All
8.	The raise in present temperature of earth compared to 100 years ago is____ a) 2 – 6 ° C b) 0.3 – 0.6 ° C c) 10 ° C d) 0 ° C
9.	Global warming is due to release of a) SO_2 b) greenhouse Gases c) inert gases d) free chlorine
10.	The main constituents of Greenhouse gases (GHG) are on earth surface are a) CO_2, CH_4 b) SOx c) nitrogen d) water vapor
11.	The predicted raise in mean sea level due to global warming by the year 2100 ____ a) 1 m b) 1 cm c) 2 m d) 9 -88 cm
12.	The agency to look after the climate changes and for action to cut GHG ____ a) UNFCCC b) WHO c) DOE d) GOI
13.	What is COP? a) Conference of Parties b) Coefficient of Pollution c) Coalition of Parties d) Convention of People

14.	The number of major green house gases covered for their reduction by the Kyoto protocol are a) 10 b) 2 c) 6 d) 1
15.	Which country emits maximum CO_2? a) Australia b) Iceland c) Norway d) USA
16.	The year in which India ratified the Kyoto protocol____ a) 1997 b) 2002 c) 2000 d) 2003
17.	CDM stands for a) Carbon Depletion Mechanism b) Clean Development Mechanism c) Clear Development Mechanism d) Carbon Depletion Machinery
18.	The fund intended to invest in projects that will reduce green house gas emissions is___ a) Prototype Carbon Fund b) GHG Reduction Fund c) Pollution Control Fund d) None
19.	The first project GOI approved under prototype carbon fund is_____ a) SWERF b) NICE c) Asia-Urbs d) ICT
20.	The name of the world commission on Environment and development is ____ a) Brundtland Commission b) Zakaria Commission c) Planning Commission d) None of the above

Part – II: Short type questions and answers

1.	Give few examples of environment issues on global significance? • Ozone layer depletion • Land degradation • Air and water pollution • Sea-level rise • Loss of biodiversity
2.	What is Ozone layer depletion? The ozone layer is highly reactive and easily broken down by man made chlorine and bromine compounds. These compounds are found to be most responsible for most of ozone layer depletion. This leads to decrease in thickness of the ozone layer and this phenomenon is called as Ozone layer depletion.

3.	What are the impacts of Ozone Layer depletion? • Human health with potential risks of eye diseases, skin cancer and infectious diseases. • Changes in species composition thus altering the bio-diversity in different ecosystems • Damage to early development stages of fish, shrimp, crab, amphibians and other animals, • Affect terrestrial and aquatic bio-geo-chemical cycles thus altering both sources and sinks of greenhouse and important trace gases.
4.	What is the impact of Global Warming? Greenhouse gases trap some of the out going energy and retain heat in the earth atmosphere, which results in an increase in the earth atmospheric temperature.
5.	Mention three important GHG covered under the Kyoto protocol . The six major greenhouse gases covered by the protocol are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydroflurocarbons (HFCs), perflurocarbons (PFCs), and sulfur hexafluoride (SF_6).
6.	Who is the nodal agency for monitoring climate changes in India? The Ministry of Environment and Forests is the nodal agency for climate change issues in India.
7.	Mention few sectors that contribute to maximum emissions in India? Energy sector: emissions from road transport, burning of traditional bio-mass fuels, coal mining, and fugitive emissions from oil and natural gas. Agriculture sector: emissions from enteric fermentation in domestic animals, manure management, rice cultivation, and burning of agriculture residues.
8.	Name at least three Ozone layer Depleting Substances (ODS). • Chloro Fluro Carbons (CFC's) • Hydrochloro Flurocarbons (HCFC's) • Hydrobromo Flurocarbons (HBFC's) • Halons • Methyl Chloroform • Carbon Tetra Chloride (CTC) • Methyl bromide.
9.	What are the three mechanisms suggested to cut GHG emissions as per Kyoto protocol? a. Emission trading b. Joint implementation c. CDM
10.	What is the commitment of signatories of Kyoto Protocol? To reduce the overall emissions of GHG by at least Five percent below 1990 levels in the commitment period 2008 to 2012.

11.	What is Agenda 21 under sustainable development? Agenda 21 set out recommendations for developed and developing nations regarding sustainable development strategies concerning clean air and water, water supply, energy, land use, housing, waste treatment, transportation, and health care.
12.	Name the three zones of earth's atmosphere? 1. Troposphere 2. Ionosphere 3. Stratosphere
13.	Write about chemistry of ozone? Ozone formed by combination of three oxygen atoms, is a very unstable molecule. The combination is brought about by high intensity ultra violet rays of the sun in the upper atmosphere.
14.	Write the importance of ozone layer? The ozone layer is highly beneficial to plant and animal life on earth filtering out the dangerous part of sun's radiation and allowing only the beneficial part of reach earth. Any disturbance or depletion of this layer would result in an increase of harmful radiation reaching the earth's surface leading to dangerous consequences.
15.	How carbon-di-oxide is produced? Carbon dioxide is produced when fossil fuels are used to generate energy and when forests are cut down and burned.
16.	What will be the expected rise in temperature and mean sea level by the year 2100, due to climate change? Climate models predict that the global temperature will rise by about 6 °C and mean sea level is expected to rise 9-88 cm by the year 2100.
17.	What are the likely affects of Global warming on India? Models predict an average increase in temperature in India of 2.3 to 4.8 deg. C for the benchmark doubling of carbon dioxide scenario. Temperature would raise more in northern India than in southern India, without protection approximately 7 million people would be displaced, 5700 km^2 of land and 4200 km of road would be lost and wheat yields could decrease between 2.8 to 6.8%.
18.	Why CoP has been formed? All nations, who initially ratified the UNFCC, reconvened in the form of conference of Parties (CoP) at Berlin in 1995 with a goal of entering into negotiations on a protocol to establish legally binding limitations or reductions in emission.
19.	Compare the per capita CO_2 of India with world's average value? India per capita CO2 of 0.93 t per annum and is well below the world average of 3.8 t per annum.
20.	Define Sustainable development defined by Brundtland commission. The World Commission on Environment and Development (the Brundtland Commission) defined sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

Part-III: Long type Questions and Answers

1.	What are the implications of Global warming? **Increase in global temperature** Observations show that global temperatures have risen by about 0.6 °C over the 20th century. There is new and stronger evidence that most of the observed warming over the last 50 years is attributable to human activities. Climate models predict that the global temperature will rise by about 5.8°C by the year 2100. **Rise in sea level** In general, the faster the climate changes, the greater will be the risk of damage. The mean sea level is expected to rise 9 - 88 cm by the year 2100, causing flooding of low lying areas and other damage. **Human society will face new risks and pressures.** Food security is unlikely to be threatened at the global level, but some regions are likely to experience food shortages and hunger. Water resources will be affected as precipitation and evaporation patterns change around the world.
2.	What do you understand by Conference of Parties (CoP) and explain the objectives of CoP? The Conference of the Parties is the supreme body of the Climate Change Convention. The vast majority of the world's states are members (185 as of July 2001). The Convention enters into force for a state 90 days after that state ratifies it. The COP held its first session in 1995 and will continue to meet annually unless decided otherwise. (The various subsidiary bodies that advise and support the COP meet more frequently.) The Convention states that the COP must periodically examine the obligations of the Parties and the institutional arrangements under the Convention. It should do this in light of the Convention's objective, the experience gained in its implementation, and the current state of scientific knowledge. Exchange of Information: The COP assesses information about policies and emissions that the Parties share with each other through their national communications. It also promotes and guides the development and periodic refinement of comparable methodologies, which are needed for quantifying net greenhouse gas emissions and evaluating the effectiveness of measures to limit them. Based on the information available, the COP assesses the Parties™ efforts to meet their treaty commitments and adopts and publishes regular reports on the Convention's implementation. Support for Developing countries: Developing countries need support so that they can submit their national communications, adapt to the adverse effects of climate change, and obtain environmentally sound technologies. The COP therefore oversees the provision of new and additional resources by developed countries.
3.	Explain about Prototype Carbon Fund? Recognizing that global warming will have the most impact on its borrowing client countries, on July 20th, 1999 the Executive Directors of the World Bank approved the establishment of the Prototype Carbon Fund (PCF). The PCF is intended to invest in projects that will produce high quality greenhouse gas emission reductions that could be registered with the United Nations Framework Convention on Climate Change (UNFCCC) for the purposes of the Kyoto Protocol. To increase the likelihood that the reductions will be recognized by the Parties to the UNFCCC, independent experts will follow validation, verification and certification procedures that respond

	to UNFCCC rules as they develop. The PCF will pilot production of emission reductions within the framework of Joint Implementation (JI) and the Clean Development Mechanism (CDM). The PCF will invest contributions made by companies and governments in projects designed to produce emission reductions fully consistent with the Kyoto Protocol and the emerging framework for JI and the CDM. Contributors, or "Participants" in the PCF, will receive a pro rata share of the emission reductions, verified and certified in accordance with agreements reached with the respective countries "hosting" the projects.
4.	Write about Indian initiatives on CDM? Government of India has been willing to fulfill its responsibility under the CDM. It has developed an interim criterion for approval of CDM project activities, which is now available to stakeholders. It has undertaken various capacity building activities like holding of workshops, initiation of various studies, and briefing meeting with the stakeholders. India has been actively participating in the CDM regime and has already approved projects for further development. Under CDM, projects such as energy efficient hydrocarbon refrigerators, modernization of small scale foundry units and renovation, modernization of thermal power stations etc. are being taken up.
5.	Explain briefly the major provisions of Kyoto Protocol treaty. Also briefly discuss India's greenhouse issues? The Protocol states that "developed countries are committed, individually or jointly, to ensuring that their aggregate anthropogenic carbon dioxide equivalent emissions of greenhouse gases do not exceed amounts assigned to each country" in Annex A to the Protocol, "with a view to reducing their overall emissions of such gases by at least 5% below 1990 levels in the commitment period 2008 to 2012." India has ratified the contentious Kyoto Protocol in August 2002. India has experienced a dramatic growth in fossil fuel CO_2 emissions, and the data compiled by various agencies shows an increase of nearly 5.9 % since 1950. At present India is rated as the 6th largest contributor of CO_2 emissions behind China, the 2nd largest contributor. However, our per capita CO_2 of 0.93t per annum is well below the world average of 3.87t per annum. The energy sector is the largest contributor (55%) of carbon dioxide emissions in India. Agriculture sector constitutes the next major contributor, accounting for nearly 34%.