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THE OPEN UNIVERSITY OF SRI LANKA

PGD /M.Sc. In Environmental Sciences Level 07 (2013)

NEP 2207 Climate Change

FINAL EXAMINATION 2013

Date: 06th July 2013

Time.1.30 pm - 4.30 pm

Answer any Four (04) Questions only

1. (i) Briefly explain the earth Motion in space
(ii) In the middle latitudes days are longer than nights between spring and equinoxes, why?
(iii) The significance of an atmospheric gas or aerosol is not necessarily related to its relative abundance. Elaborate this.
(iv) The atmosphere above the earth surface is divided into various spheres. Name these spheres and boundaries showing clearly the location of these spheres and boundaries in your diagram.
(v) Give the reasons for the variation of temperatures in each sphere.

2. (i) The atmosphere is relatively transparent to solar radiation. Elaborate on this statement.
(ii) For entire globe, why must incoming radiation balance the outgoing radiation?
(iii) Which gases are the largest contributors to global warming?
(iv) Temperate countries use enclosures with glass roofs to grow tropical plants, called greenhouses where inside is warm. Explain the mechanism of the greenhouse and similarity of this to the greenhouse effect works on earth. What would have been the temperature of the earth without the natural greenhouse gasses?
(v) Explain briefly the effect to the climate by adding more greenhouse gasses to the atmosphere.

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3. (i) Draw a diagram and explain the convection cells that distribute heat over the whole earth assuming smooth non rotating earth.
(ii) What will happen to these convective cells when the earth is rotating?
(iii) What is meant by the **Atmospheric Greenhouse gas Enhancement**?
(iv) Name the **Natural Greenhouse Gas Constituents**. How many of the **Natural Greenhouse Gas Constituents** are undergoing well-documented increases in concentration due to human activity, name those constituents.
(v) What is meant by the **New Greenhouse gases**? There is noticeable reduction in some of above gasses since 1987, why?
 4. (i) If water vapour is the key greenhouse gas why are man-made emissions so important?
(ii) How will climate change affect rainfall?
(iii) What is carbon capturing and storage (CCS)?
(iv) Which industries and activities emit more carbon?
(v) What are CO₂ e (CO₂ Equivalents) and global warming potential (GWP)?
 5. (i) How will climate change affect agriculture?
(ii) Which gases are the largest contributors to global warming?
(iii) What role does human activity play in the current global warming trend?
(iv) How valuable are trees for preventing climate change?
(v) Why do you say it's a good thing to burn wood as fuel? Surely wood burned equals carbon emitted?
 6. (i) What are climate change and global warming, and how are they related?
(ii) What is the Kyoto Protocol and what can it do to curb climate change?
(iii) What does "planning to adapt to climate change" mean in practice?
(iv) What can we do right *now* to slow climate change and make a real difference?
(v) What role can businesses play in curbing climate change?
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