THE OPEN UNIVERSITY OF SRI LANKA
B.Sc/ B.Ed DEGREE PROGRAMME- 2008/2009
Level 5- CHU 3122/ CHE 5122

ENVIRONMENTAL CHEMISTRY

ASSIGNMENT TEST I

Date: 20th September 2008 Time: 3.30 p.m. - 5.00 p.m.

Answer all the questions.

1. (a)(i) Briefly describe the structure and the function of the atmosphere.
(ii) The major regions of the atmosphere are characterized by the altitude, temperature range and the chemical species present. Identifying the regions and boundaries, draw a diagram to show the structure of the atmosphere. Indicate the important characteristics of these regions.
(iii) Draw the variation of temperature with the altitude in the atmosphere.
(70 marks)

(b)(i) Define the terms 'source' and 'sink' as used in environmental chemistry.
(ii) Write the sources, sinks and the environmental effects of carbon monoxide.
(30 marks)

2. (a)(i) Identify the main anthropogenic sources of sulphur dioxide. Write equations for the major sinks of SO_2.
(ii) Describe the environmental effects of SO_2. (40 marks)

(b)(i) Identify the constituents present in photochemical smog and account for their formation during photochemical smog.
(ii) Write the harmful effects of photochemical smog. (40 marks)

(c) Write down the major sources of radon in the indoor environment. Briefly discuss its health effects. (20 marks)

3. (a)(i) Write the anthropogenic sources of NO_x and write equations for their major sinks.
(ii) Describe the environmental consequences of increased levels of NO_x in the atmosphere. (50 marks)

(b)(i) Briefly describe the beneficial role of stratospheric ozone.

(ii) Explain, using equations, ozone depletion by chlorofluorocarbons (CFCs). What additional problems would CFCs poses for the environment?

(iii) Suggest important feature(s) of compounds that are likely to replace CFCs in the usual applications. (50 marks)

.....