



KRC

THE OPEN UNIVERSITY OF SRI LANKA
M.Sc. In Environmental Sciences Level 08 (2016-2017)
NEP 2207 /NEP 2217-Climate Change
GBT-1

Date: 24th June 2017

Time.13.00.hrs to - 14.00 hrs

Answer ANY Three (03) Questions

1. (i) Briefly explain the relationship of the axis tilt to the seasons of the Earth.
(ii) The sun is the ultimate source of heat for the earth. Mountain tops are closer to the sun than lowlands and yet, mountain tops are colder than lowlands. Why?
(iii) What is the significance of the Tropic of Cancer and the Tropic of Capricorn?
(iv) Why do pollutants that enter the lower portion of the stratosphere tend to remain there for long periods?
(v) Why is the aurora visible only at high altitudes?
2. (i) Describe three processes by which heat can be transferred from one place to another. Provide a common example of each.
(ii) Why is convection much more important than conduction in the transport of heat from the earth's surface into the atmosphere?
(iii) Name 5 physical conditions which control the climate. What is the name given to these properties?
(iv) Briefly explain how three of the above physical conditions control the climate?
3. (i) What are the Sun's harmful radiation, why these radiation not reaching the earth's surface?
(ii) What is the relationship between the temperature of a radiating object and the wave length of emitted radiation? Why is the sky blue and why are clouds white?
(iii) What is the significance of the "greenhouse effect" for temperature at the earth's surface?
(iv) For the entire globe, why must incoming solar radiation balance outgoing infrared radiation? What would be the implications for global climate if this energy balance did not prevail?
4. (i) There are three fundamental ways to change the radiation balance of the Earth. Name these three with examples.
(ii) What Cause the atmospheric Circulations. Draw a diagram of general circulation pattern assuming that earth is not rotating.
(iii) Explain briefly what will happen to this circulation when the earth is rotating.
(iv) What are the three Important Albedo Feedback? Briefly explain two of these feedbacks.
5. (i) Briefly explain the development of sea breeze and land breeze,
(ii) Why Monsoons are considered as large-scale sea breezes and land breeze?
(iii) What is Inter Tropical Convergence Zone (ITCZ)
(iv) Describe the weather along the Inter Tropical Convergence Zone (ITCZ).