

EASTERN UNIVERSITY, SRI LANKA

THIRD EXAMINATION IN SCIENCE - 2004/2005 (2006)

SECOND SEMESTER

PH 306 Environmental Physics

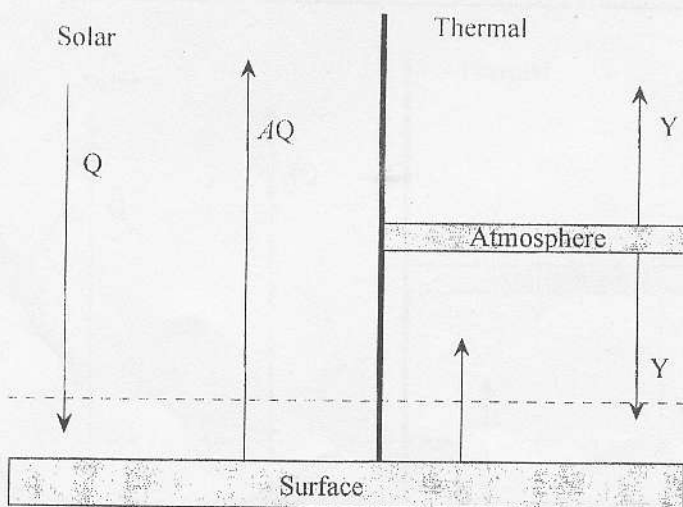
Answer ALL questions.

Time: 1 hour

- (Q1) (a) Sketch the temperature profile of the atmosphere as a function of height to 300 km altitude. Name the different regions and describe briefly the advantages of each region.
- (b) (i) Discuss the importance of renewable energy and list some renewable energy sources suitable for Sri Lanka.
- (ii) By taking one of the listed renewable energy sources you have mentioned above, discuss how efficient we could utilize this energy source for our daily use.

(Q2) Briefly describe the radiation energy balance on the earth.

Consider the following two-tone climate model of a planet. In a solar tone, the atmosphere is transparent and the surface reflects radiation with an albedo A of 0.50. In the terrestrial or thermal tone, the emissivity of the planet surface and the absorptivity of the atmosphere are both unity. Assume the Stefan's constant σ as $5.67 \times 10^{-8} \text{ Wm}^{-2}\text{K}^{-4}$.



- (a) If the solar constant of the planet is 1500 Wm^{-2} , what is the effective radiating temperature of the planet?
- (b) What would be the temperature of the surface?