

12/19/05

(10)

Fall 2005
CEE 432/532
Quiz #9

1. Fill in the blanks:

[10]

- (a) The exponential relationship between pressure and altitude arises from the compressibility of air.
- (b) In the standard atmosphere, temperature decreases at the rate of approximately 6.5 °C per 1000 m up to an altitude of about 11,300 m.
- (c) Anthropogenic emissions of CO₂ primarily originates from fossil fuel combustion in industries and vehicles and from the effects of deforestation.
- (d) Emissions of NO_x not only contribute to acid deposition, but also contribute to ozone depletion and the greenhouse effect.
- (e) Methane, a key greenhouse gas, has many natural sources, including wetlands and termites.
- (f) Aerosols refer to particles generally less than 50 μm in diameter, and often are classified according to their source as either primary or secondary.
- (g) Fine particles, commonly referred to as PM_{2.5}, can enter the lungs easily, and are a public health concern.
- (h) If the actual measured lapse rate is greater than 9.8°C/1000 m, a parcel of air displaced upward from its initial height becomes warmer than its surroundings and therefore tends to rise.
- (i) Effective stack height is equal to physical stack height plus ΔH, the plume rise.
- (j) When incorporation of chemicals into water droplets occurs within a cloud, the process is called rainout.